Architectural Library FEB 17 1922

THE BUILDER

A JOURNAL FOR THE ARCHITECT & CONSTRUCTOR

VOLUME CXXII. No. 4122. Eightieth Year.

FRIDAY, FEBRUARY 3, 1922.
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THE BUILDER

A JOURNAL FOR THE ARCHITECT AND CONSTRUCTOR.

WITH WHICH IS INCORPORATED THE "BRITISH ARCHITECT."

VOL. CXXII.—No. 4122 FEBRUARY 3, 1922.

REGULATIONS GOVERNING FRENCH PUBLIC COMPETITIONS.

AT the present time the architectural profession is under a cloud. Work is scarce, and even the busiest architect is apt to find time for reflection. It is during such periods that the most favourable opportunity presents itself for a review of the internal organisation of the profession, for a consideration of the means whereby it may be improved, and one of these means appears to be a reform of the present method of architectural competition. When private work is scarce it naturally follows that open competitions are very well supported. It is even pathetic to contemplate the vast amount of effort which is being constantly expended by most members of the profession in the hope of winning the assessor's approval and gaining a commission or a premium. Such effort need not, however, be unproductive to the unsuccessful, despite the lack of visible results. Whether this be the case or not must depend on the conduct of the competition, on the certainty that the assessing is as competent and just as is humanly possible, and on such a published justification of the award in the form of a report as will show the unsuccessful where and why they have failed.

The present system of assessing competitions seems to be firmly established in the favour of the architectural societies in England, though there are many individual architects who are convinced of its defects, and its weaknesses have often been pointed out. It may, therefore, throw light on a controversial subject to supply details of the manner in which public competitions are assessed in France, in order that conclusions may be drawn as to the value of our own method. Our information is drawn from a booklet embodying the regulations formulated for the conduct of public competitions by the joint committees of the Société Centrale des Architectes and the Société des Architectes Diplômés, supplemented by data courteously supplied by the Secretary of the S.A.D.G.

As in England, French competitions may be open, or limited to invited architects or to architects of a certain district or category. They may be single, or double, *i.e.*, a competition consisting of a preliminary and final round. The latter type is specially recommended, and it is stated that the preliminary drawings should be on a small scale and presented as an *esquisse* without elaborate drawings. The main idea seems to be to avoid useless work and expense to competitors. The regulations refer with special emphasis to the importance of a well-drawn-up programme. This programme constitutes, as it were, the articles of agreement between the competitors and the promoters. It should not be vaguely worded, nor should it be accompanied by insufficient or inaccurate site plans and information. The programme should not imply conditions or restrictions which most competitors observe only to find them flouted in the premiated designs.

The assessing of all competitions not "banned" by the three principal French societies is in the hands of a jury, consisting of architects delegated by the societies or selected by the competitors, the former method being considered preferable. To this technical jury are added representatives of the promoters or organisers. The architects are, whenever possible, in the majority, and thus have the casting vote. The jury is kept as small as possible, but nevertheless it has attached to it one or more representatives chosen by the vote of the competitors from amongst their number. These representatives of the competitors are present at the assessing and voting of the jury, and their presence is a guarantee to the competitors that the work is conscientiously and fairly carried out. Voting is carried out (1) by preliminary examination and elimination, (2) by successive balloting on those designs which have been retained, resulting in a gradual process of elimination. It is particularly interesting to note that French assessors do not receive payment for their services. They are entitled merely to their travelling and incidental expenses.

As a general rule, the report of the assessors is not published. The result of the competition is, of course, notified to the competitors, and as in England is published in the technical Press, but without details of the voting or remarks on the award.

It will be seen that the main difference between our own and the French system consists in the composition of the jury and the fact that it is not remunerated. In England the jury for public competitions is the exception, and the individual assessor's fee is a considerable item. The French method seems to have certain distinct advantages. The jury is, of course, a great safeguard to the competitors, especially as it comprises as auditor a representative from amongst them. The fact that there is no assessor's fee makes the work esteemed for its own sake as the duty of the recognised and qualified leaders of the profession to their fellows. In this way there is elimination of the danger, as some critics regard it, of nomination to assessorships being awarded as "one of the pleasant little perquisites due to a favoured few within a small circle or coterie."

The question as to whether there should be a published assessors' report seems to be debatable, and there are no doubt serious reasons against publication. There is always the chance of the dissatisfied competitor opening up a controversial correspondence in the Press, and it may be that the promoters of the competitions have objections to any public explanation of the assessors' award. On the other hand, it seems only reasonable to expect that any jury is prepared to stand by its award and justify it in black and white. The very hesitation to do so shakes the confidence of the competitor, and leads him to feel that the award of premiums may have been arrived at through a preconceived solution present in the assessors' minds, or by personal sympathy with the character of a competitor's design, and not by a careful analysis and weighing of points carried out with logic and method. The necessity for publishing a report would inevitably work for the most careful assessing, and would give universal satisfaction to competitors.

There is cause for complaint in regard to the notification of awards to competitors. Exhibitions of competitive designs sometimes take place without competitors having even heard of the results, and are over before they can attend. In some cases of "double" competitions, the successful competitors are well started on their final schemes without the remainder even being notified of their selection. There is in such cases not only complete lack of ordinary business courtesy in such proceedings, but almost a suggestion of stealthy procedure which does not accord with English ideas and does not do justice to the unquestionable integrity of assessors.

Architects to-day are becoming more and more critical. They are being increasingly better trained, and they expect their work in competition to be judged in the most unimpeachable manner. The method of the individual assessor is not without its advocates and it has provided some excellent results, but with its wide loophole for abuse and dissatisfaction it is, we suppose, bound to disappear; it is only the difficulty of any collective effort on the part of architects to change the existing order which has allowed a system which has many defects to exist so long as it has.

NOTES.

The Late Ernest Newton.

IT is seldom a profession loses one from its ranks whose going makes so great a break in the continuity of good comradeship as the death of Ernest Newton, for many of us have felt the value of his sane and kindly counsel and believed all the more in the possibilities of our work because of his own assured and devoted belief. From the days of his pupilage in the office of Norman Shaw he has quietly and steadily progressed, undeterred and unhampered by false gods. His deep appreciation of our best English art has ever been his fount of inspiration, and his own character of simplicity and breadth of view has been exemplified in every building, cottage, mansion or church which he has called into being. We hope and we believe that his record may be counted as a steadying influence amongst many architects, both young and old, who see in it a determination to combine sound and sensible construction with the great qualities of good planning, pleasing proportion and distinction of emphasis. He has built some of the most lovable of modern houses and at least one fine church. His practice has probably been larger than many architects imagine, but it has been one which marks him out as one of the most successful of modern domestic architects, and he must have felt happy in the thought that he has handed on the torch of tradition and inspiration to the hands of others who follow him. If our domestic art is still living and is going to remain a valuable heritage amongst us we have to thank artists like Ernest Newton, who have shown us by a life's devotion how it may add to our joys and our comfort. The reflection of his kind and sympathising personality has lighted up the pages of our current literature, and any one of us may be content if the work of our lives is as fruitful and valuable as his.

Then and Now.

WE live in a world of change, and we are apt to forget that every one of us in our own person is involved in the change. If we are honest with ourselves we shall find our mentality has changed with the times, but, lest we forget, there is always someone ready to remind us of it. We need not be surprised, therefore, if there is a then and now in the outlook on housing by Sir Charles Ruthen. On October 31, 1919, he is reported as saying, "If the solution (of the housing problem) did not proceed more rapidly than at present, there would probably be a revolution. It did not matter a great deal how long the houses would last so long as they relieved the immediate shortage—the future generation could very well be left to look after themselves." We wonder if this will be one of the observations Sir Charles will live to regret. Architects have been confronted with very different speeches in dealing with housing schemes. How much of this reasoning has been employed by the Ministry of Health!

The Beauchamp Chapel, Warwick.

[This chapel is in need of repair to prevent its collapse, and a committee has been formed to raise the sum of £5,000 for the purpose. The secretary of the committee is Mr. C. Armstrong, 5, High-street, Warwick.]

The Truth About Housing Costs.

As a set-off against the serious accusations brought against the profession by Sir Charles Ruthen it is pointed out in a letter to *The Times* by Mr. Wm. Woodward that the whole trouble as regards delay and cost of housing rested with the Ministry of Health, who raised the cost of each house by £350 through the limitation of output. He suggested, in 1919, first, the discharge of all officials engaged in their building business; second, the giving up control of building materials; and third, to secure the help of those for whom the houses were primarily designed.

Thanks to Sir Charles Ruthen.

THE very natural indignation aroused by Sir Charles Ruthen's criticism of his professional brethren has, we think, been adequately reflected in our columns, and except for any subsequent developments that may take place the time appears to have come when we may say "the incident is now closed." That incident in itself will always be regrettable, but does not the chief actor after all deserve our grateful thanks? He set out to startle us into "some definite form of activity," to awaken us from "the lethargy into which ages of false pride have reduced us," and that he has succeeded we think he will be pleased to admit. He may even be surprised at the fulness of the awakening, for never before has the profession been more united as a result of his sweeping and altogether unjustifiable charges. We expressed the hope that from his address permanent good would result, and we have no doubt it has. May we not therefore tender him the grateful thanks of a united profession?

Estate Agents and Registration.

As will be seen from the report we give on p. 200, the Auctioneers' and Estate Agents' Institute is, jointly with the Surveyors' Institution and the Land Agents' Society, proposing to promote a Bill in Parliament to close by registration the professions represented by those bodies. Their action is based on a desire to protect and give the public a guarantee that anyone on the register shall be qualified, which is, of course, the principal argument for registration in any profession. There appears to be whole-hearted co-operation between the three bodies concerned, but even then it is admitted that Parliament is not likely to allow the living of any man not a member of any of these institutions to be taken away if he is actually in practice, and therefore it is proposed to register the duties of an estate agent rather than the individual. We shall watch the movement with interest, as it shows that the difficulties of the architectural profession are felt by other bodies.

The Commercial Ideal.

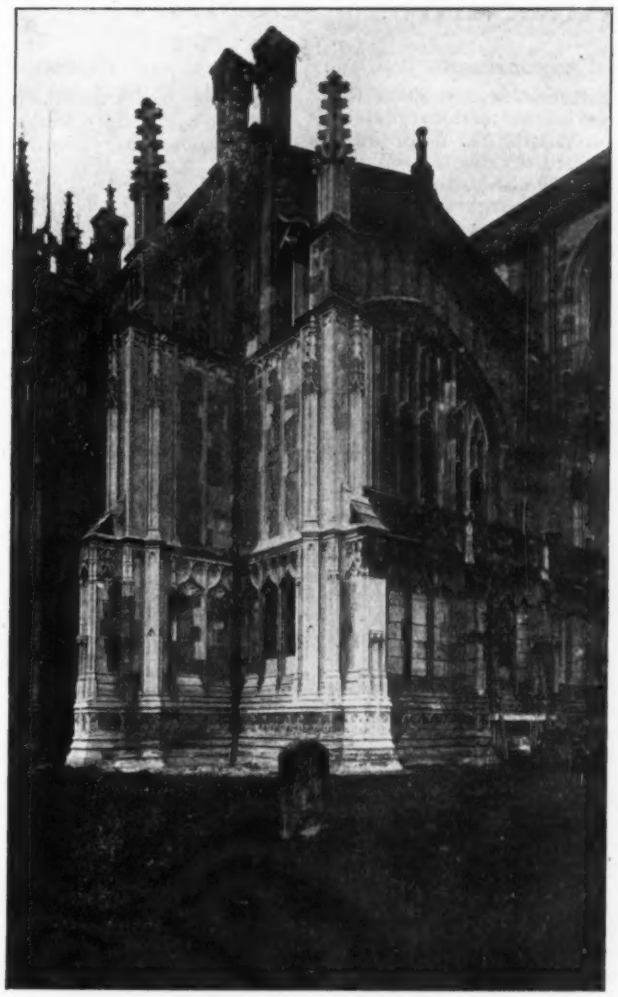
THE lecture which Mr. H. B. Creswell delivered to the Architectural Association on Monday, an abstract of which appears on p. 181, raises some important issues which did not appear to be wholly comprehended by those who took part in the discussion. The title of the address was "Ourselves," and the object of the lecturer was to combat the commercial ideal which he described, and which will, he said, if it continues to make way, make art impossible. Though we do not endorse all that was said, we are afraid there is a great deal of truth in Mr. Creswell's arguments, which we should like to see taken up by all who are interested in our national welfare.

The Hastings Pavilion Competition.

THE Hastings Pavilion Competition appears to have resulted in the selection of the best design for the somewhat limited cost available. Judging from the illustrations of the premiated designs in a local paper we think it will be agreed that Professor Adshead has rightly chosen between those illustrated. The plan of the winning design is simply and well laid out, and the sections show that the cubical contents have been kept down to a careful limit. The simple Italian character of the exterior will be rather a grateful contrast to the fuss and restlessness of much other work. We regret to see in the local Press that something in the nature of an agitation has been started to upset the Professor's award, and one writer says, "to erect a building such as that which has gained the first prize would be to outrage the feelings of the inhabitants of the borough. . . . To put upon our front line a structure such as is proposed is simply unthinkable. The town will not have it." We may very well ask what is the value of trained judgment and advice if such comment can obtain a hearing.

The Beauchamp Chapel, Warwick.

IT is to be hoped that a ready response will be made to the appeal for the repair of the Beauchamp Chapel, Warwick. Some £5,000 is required, and it is impossible to think of such a fine old piece of Gothic architecture being lost for lack of so comparatively small an amount. The serious condition of the building recalls the trouble at St. George's Chapel, Windsor, for the buttresses on which the vaulting depends for support are full of open joints and generally in a bad state. The war has interfered with the work, causing delay and further cost, but out of the thousands who have seen and admired this beautiful old building one may reasonably hope there may be found a goodly number of subscribers to preserve such a valuable relic of old England. The architect's report is by Mr. Philip B. Chatwin, of Birmingham, whose firm has had charge of the fabric for many years. Subscriptions may be sent to Mr. Charles Armstrong, architect, High-street, Warwick.



The Beauchamp Chapel, Warwick.

The Care of St. George's, Windsor

IT was natural that some anxiety should be felt as to the architectural oversight of St. George's Chapel, Windsor, but the Dean has very considerately shown the steps taken in the matter, which at last, on the advice of Sir Aston Webb, has brought Mr. G. Gilbert Scott into consultation with Mr. Harold Brakspear, and we think the Dean may feel fully satisfied with the result.

Possibilities of Concrete.

THE value of concrete is assuredly not yet fully appreciated in regard to its capacity for artistic treatment, and our contemporary, *Concrete*, is well advised in showing some of these possibilities in its January issue. There is no reason whatever why, under good artistic direction, concrete might not be used in many ways to great advantage. Much depends on the aggregate for results of colour and texture, but after all the good results depend on the really careful thought and design of the artist.

Chelmsford Cathedral.

SIR CHARLES NICHOLSON'S design, illustrated in our New Year issue, shows in an interesting manner that, at times, the modern architect does better than his mediæval predecessor, who often ruthlessly destroyed existing work when he wanted a larger or more beautiful structure than then existed, and though architecture may have gained, history suffered. At Chelmsford the nave and aisles of the existing church are to be preserved and treated as south aisles of the new Cathedral, and their architecture gives the keynote to that of the new building. The design is an interesting example of how an existing building may be successfully worked in as part of a new one.

The Parthenon.

THE debatable point as to the wisdom of renovation or restoration of old buildings is raised once more by a discriminating article in *The Times* on the condition of the Parthenon. Some confidence may apparently be placed in the security offered by the Greek authorities that the work will be placed in capable hands. Dr. Gardner appears to think that even capable restoration may give a patchwork appearance which would be more unpleasant than anything in the present look of the Parthenon.

GENERAL NEWS.

Professional Announcements.

Owing to the theft on January 30 of the whole of the letters in the morning post at 45, New Bond-street, W.1, Mr. A. W. S. Cross, Messrs. George Hubbard & Son, Mr. W. C. Symes, and Mr. Armitage wish us to state that they can only apologise through the Press to those who may receive no reply to their letters.

Messrs. E. Goldie & Son, architects (Mr. J. Goldie), have removed from No. 155, High-street, Kensington, and are now carrying on practice at 7, Victoria-street, Westminster, S.W.1. (Telephone: Victoria 2174).

Mr. Geoffrey T. Mullins, A.R.I.B.A., architect, has removed from Bedford-row to No. 6, Old Queen-street, Westminster. S.W. 1 (Telephone, Victoria 8354).

Obituary.

The death took place on January 30 of Mr. Henri Favarger, F.S.A., F.R.I.B.A., late of Cairo, in his 67th year.

It is reported that the Norwegian sculptor, M. Stephan Sinding, died last week in Paris where he had lived for several years past.

Institution of Welding Engineers.

Members of the various sections of the welding industry, at an inaugural meeting held on January 26 at the Holborn Restaurant, adopted the proposal to form a new welding society embracing all systems of welding. A committee with power to add to its number, representing the different interests, was elected to draft the constitution with a view to registration after the constitution has been approved by a general meeting which will be called at an early date. The name agreed upon is "The Institution of Welding Engineers," and all interested in the welding and allied industries will be eligible for membership. The offices (*pro tem.*) are at 30, Red Lion-square, London, W.C. 1.

Presentations at the R.I.B.A.

A pleasant little function took place on Wednesday at the R.I.B.A. when presentations were made to Mr. Herbert Tayler, late assistant secretary, and to Mr. George Northover, who has edited the *Journal* of the Royal Institute of British Architects for many years. The presentations, which took the form of brass striking clocks and cheques, were made in the front library by Mr. Arthur Keen, the hon. secretary, in the regretted and unavoidable absence of the President, Mr. Paul Waterhouse. Mr. Keen, in an informal way, first addressed himself to Mr. Tayler, recalling to the representative gathering assembled the long-tried and valued services of Mr. Tayler extending over forty-seven years, emphasising in particular the importance of the work he carried out in relation to the examinations which were of national importance in regard to education, which work was over and beyond the many duties that fell to the Assistant Secretary. In addressing Mr. Northover, Mr. Keen recalled his long-tried services of twenty-eight years, principally in conducting the *Journal* of the Institute. In both instances Mr. Keen called attention to the unfailing tact and courtesy displayed at all times by these two valued officials, which had created between all who were brought in contact with them ties of lasting esteem. Mr. Tayler acknowledged the gifts, referring to his good fortune in serving such secretaries as Charles Eastlake, William H. White and Mr. W. J. Locke in the past, to say nothing of the strong link of lasting friendship with Mr. Ian MacAlister. Mr. Lewis Solomon referred to Mr. Tayler's work in regard to education, which would always be regarded with gratitude, and Mr. W. A. Pite also spoke. The gathering terminated with teacups. The presentations had been most admirably conceived and carried to a successful issue by Mr. William Woodward.

COMPETITION NEWS.

Hastings.

The premiums in the Hastings music pavilion competition, for which Professor S. D. Adshead was the assessor, have been awarded as follows:—

FIRST.—Messrs. Hugh T. Morgan & Chas. Cowles-Voysey. (Illustrated in this issue.)

SECOND.—Messrs. T. Bradford Ball & F. K. Pope, Weston-super-Mare.

THIRD.—Messrs. Richardson & Gill, London.

Labour-Saving House.

The premiums in the *Daily Mail* labour-saving house competition have been awarded as follows:

FIRST (£300). — Mr. P. D. Hepworth, A.R.I.B.A., Hampstead, N.W.3.

SECOND (£125). — Mr. P. D. Hepworth, A.R.I.B.A., and Mrs. J. Dreschfield.

THIRD (£75).—Mr. Alfred Williams and Partners, London, W.C.2.

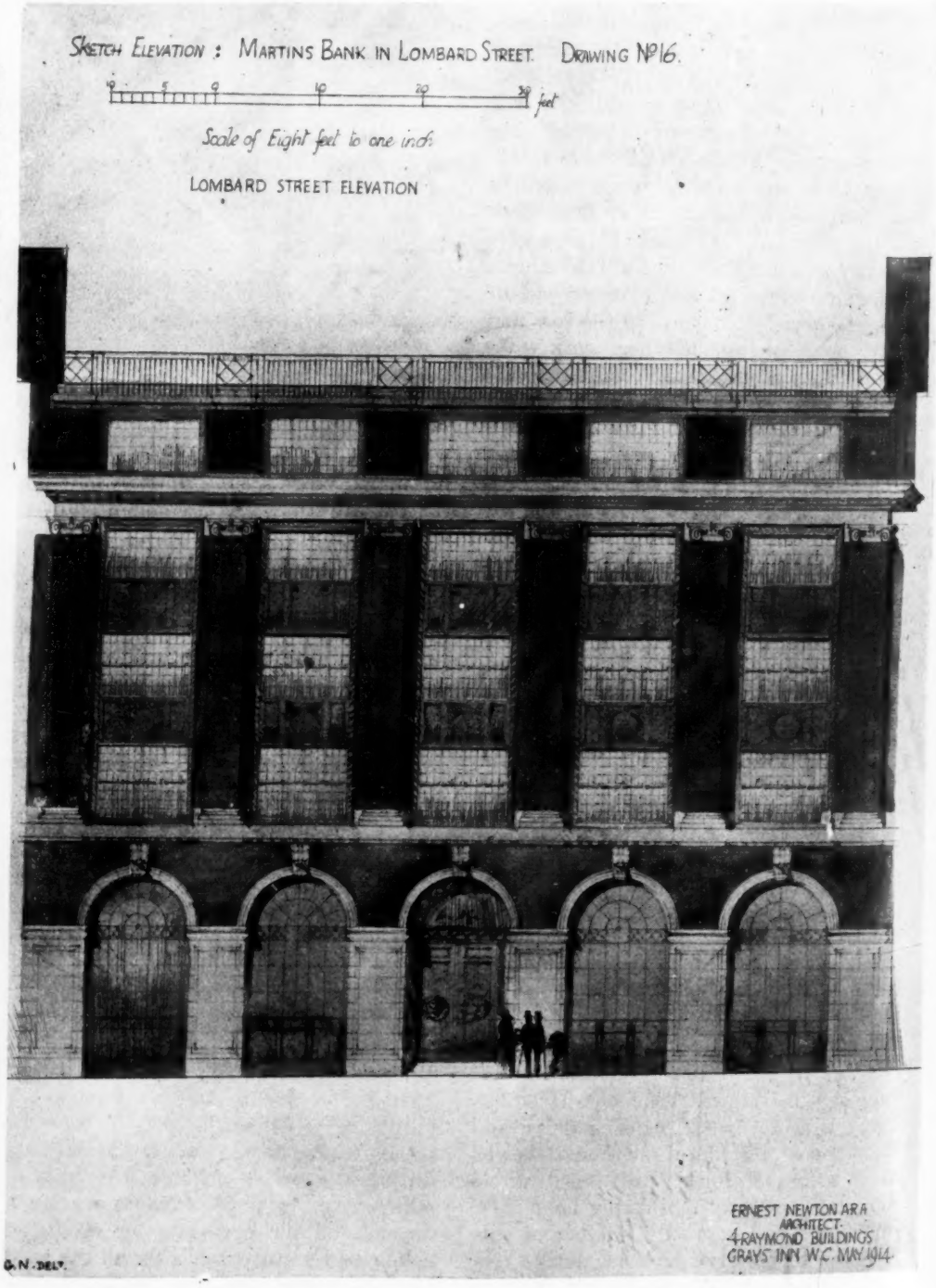
The designs of Messrs. H. L. Massey, A.R.I.B.A., A. P. Morgan, A.R.I.B.A., and F. H. Shirley, A.M.T.P.I., of London, were highly commended, and the designs of Messrs. L. G. Hannaford, A.R.I.B.A. (West Kensington), F. J. Horth, A.R.I.B.A. (Hull), W. B. Stedman, A.R.I.B.A. (Hereford), and Frank Mountain (Vancouver, B.C.) were commended.

Cairo.

We are informed that the following are the architects selected to compete in the Cairo Hospital Competition:—Messrs. Ashley & Newman, Adams & Holden, Saxon Snell, Edwin T. Hall, Young & Hall, and W. A. Pite, Son & Fairweather. The names of those selected in competition were given in our issue for December 23, 1921.

Other Competitions.

Other competitions still open include the following (the dates given are, first the sending-in date, and second the issue of *The Builder* in which full particulars were given):—Auckland war memorial (May; September 2, 1921); Trujillo (Peru) monument—banned by R.I.B.A. (June; Jan. 13); Dundee war memorial (April 3; Jan. 6); Malvern public baths (banned by R.I.B.A. and Society of Architects).


SKETCH ELEVATION : MARTINS BANK IN LOMBARD STREET. DRAWING Nº16.
0 5 9 10 20 30 feet
Scale of Eight feet to one inch.
LOMBARD STREET ELEVATION
ERNEST NEWTON A.R.A
ARCHITECT.
4 RAYMOND BUILDINGS
GRAYS INN W.C. MAY 1914.

Bank in Lombard-street, E.C. The late ERNEST NEWTON, R.A., Architect.

CORRESPONDENCE.

R.I.B.A. Defence League.

SIR,—We have received a very large number of letters agreeing with the circular recently sent to members of the R.I.B.A., and we have endeavoured to acknowledge every one, but, as the letter-box at No. 45, New Bond-street was broken open, and all the letters stolen, we may have been unable to answer some communications.

It has been exceedingly gratifying to receive so many letters of approval, and it is still more gratifying that no note of disapproval has been received. Our President has kindly fixed Tuesday, February 7, at 5.30 p.m., for a special general meeting in accordance with the following requisitions :—

"To the Council of the R.I.B.A.—We beg to ask that a special general meeting may be called in accordance with our Charter and By-law No. 65, when the following Resolution will be moved :—'This meeting is of opinion that the conditions for the unification of the profession should form part of a Registration Bill, and that the present system of admittance to the Institute, including compulsory examination, should continue in force until a Registration Bill be passed.'

"A. W. S. Cross, *Vice-President.*	Chas. B. Flockton.
	Henry Tanner.
H. D. Searles Wood, *Vice-President.*	Percival M. Fraser
	H. H. Golding.
George Hubbard.	Fredk. J. Stevens.
Sydney Perks.	F. R. Milburn.
Albert W. Moore.	W. T. Jones.
Heaton Comyn.	W. Milburn.
Leonard A. Culliford.	G. E. Charlwood.
Fredk. R. Hiorns.	G. H. Gray.
H. G. Fisher.	Sidney F. Bastow.
Digby L. Solomon.	H. L. Hicks.
R. Burns Dick.	John White.
J. T. Cackett."	

A. W. S. CROSS.
H. D. SEARLES WOOD.
GEORGE HUBBARD.
SYDNEY PERKS.

Registration and Unification.

SIR,—With reference to Mr. Healey's letter in the *Journal* of the R.I.B.A., I note he agrees with Mr. R. G. Wilson, and that these gentlemen are "all out for unification"; so am I.

Mr. Healey pleads "to include within the fold of the R.I.B.A. all architects of the United Kingdom," but Mr. Simpson, our late President, and Mr. Keen, our Honorary Secretary, are most emphatic upon the point that the so-called unification scheme means nothing of the sort, but only that certain approved architects might be allowed to join the R.I.B.A. These gentlemen would have the option either to join or to remain outside, as at present. To call such a scheme "unification" is playing with words, and a slight to our intelligence.

No voluntary scheme can possibly ensure our getting unification; the scheme must be compulsory; we must follow the example of the dentists (as advised by the Unification and Registration Sub-Committee), and the proposals for the registration of the American architects. A little thought must show that it is obvious that unification can only be obtained by the passing of a Bill for registration. We must get registration first, and unification will follow automatically.

SYDNEY PERKS.

Housing, the Architect, and the Builder.

SIR,—I have read Mr. Manning Robertson's remarks in the last issue of *The Builder* with much interest and trust that he has not written in vain. But may I point out that there is another party to be taken into account before the architect can have a chance of assisting the speculating builder, viz., the ground landlord? By-laws may be modified, and builders be ever so willing, but until the owner of the land is shown that the employment of an architect means increased revenue nothing can be done. The builder who restricts himself to the smaller houses has no say in the lay-out of the estate, and that is fundamental. I am not trying to depreciate the value of Mr. Robertson's suggestion. All I want to do is to point out that the ground landlord is even more important than the builder and by-laws combined. I know that Mr. Robertson is very much in earnest on this subject, and hope he will be able to persuade the R.I.B.A. to take the question seriously in hand when it has time. It would be very sad to see housing fall back into the deplorable condition of pre-war days now we have had even a much-hampered exhibition of what can be done in the way of improvement. Strangely enough, all the good results have arisen out of official compulsion, because, for the time being, the Government has become a speculating builder.

JOHN CASH.

Architects and Housing Schemes.

SIR,—May we ask the reason for the apparent apathy of the various professional societies to the very great injustice done to their humbler members and brethren, and also to the ratepayers in general? We allude to the action of officials in some urban and rural councils who undertake private work which is sometimes carried out during official hours. The scandal of the employment in so many housing schemes of many purely road surveyors, &c., who are well paid for their own work, has proved a bitter burden to the hundreds of architects who for many years have failed to earn a living and are called upon to pay excessive rates, &c. Surely the time has arrived for some united action.

"A COUNTRY FIRM."

Architectural Education and Overcrowding.

SIR,—I was glad to see Mr. Hector's letter in your last issue following upon Mr. Collcutt's emphatic warning uttered in his address to the R.I.B.A., the need for which was very fully endorsed by several of the speakers who took part in the subsequent discussion. The fact of serious overcrowding is admitted. But what is going to be done? A difficult matter to tackle, truly enough, but surely not incapable of some solution. Surely something can and will be done to stop this stream of enthusiastic young men spending their best years in the vain belief that they are equipping themselves for a career, to find in the end that they have merely walked into a tunnel. Mr. Hector says the A.S.A.P.U. has already approached the Council of the R.I.B.A. on this matter, but he is silent as to the result. Surely they will not pass by on the other side. As to the schools, would the standard not go up if the numbers went down somewhat? Does the overcrowding extend also to them?

Liverpool. J. GRIEVE.

Electric Passenger Lift Equipment.

SIR,—In view of the importance of the point raised in Mr. George Pepper's letter in your issue for January 20, as to the safety of the locking arrangements now fitted to the landing gates or doors of electric lifts, we should like your permission to offer a few remarks on the subject.

It is usual for the electrical control connections to be made independently of the mechanical locking action. This may seem to be safe, and is so while the lock is in order, but should it fail to engage, which may happen from a variety of causes (such as breakage of some part, stiffness, or even wear), there is nothing to prevent the lift being operated as usual, and no indication is given of the position of affairs. Mr. Pepper mentions the very common fixed-striker arrangement in which the movement of the cage away from the landing operates the lock. In other cases a moving striker is used, and movement of the cage is not necessary, but this of itself does not overcome the possibility of a dangerous situation arising.

The reverse cycle of operations should be used, that is, the electrical connections should depend upon and occur after the mechanical locking movement, which latter should be an essential part of the method of completing the control circuits. In this way only the danger to which Mr. Pepper draws attention is overcome, as should the locking fail the control circuits remain uncompleted and the lift cannot be set in motion.

PENROSE LIFTS, LTD.,
MALCOLM OWEN, *Director.*

Old London Bridge.

SIR,—You ought to be publicly thanked for your efforts, first and last, in the preservation of memories of Old London Bridge, and for none more than the present one. My hope is that it may be entirely successful and result in the improvement of that section of the river in co-ordination with other parts on a systematic plan, as has been pleaded for again and again. *In toto*, that work is a gigantic proposition of a perplexing nature, but it is in the nature of progress that it should be carried out, and commenced *now*, if only to formulate the plan. In extent it may be said to cover the whole of the tidal reach, or from the sea to Teddington Lock. In the Victoria Embankment, Houses of Parliament, St. Thomas' Hospital, and the County Buildings frontages, those portions may be said to be complete, but everywhere else there is a case for reconstruction.

The attempt to rebuild the "Pearl" building is a vast mistake. The existing state of things eastward cannot be perpetuated, as the re-erection of the building would practically mean. I reckon that the line of the long-talked-of new Embankment is indicated in St. Magnus Church (as shown in *The Builder* for January 20), the Custom House and the Tower—the whole being carried out in conformity with the project of the western section for joining up the Victoria Embankment.

Billingsgate could be much better accommodated on the site of St. Katherine's Dock, where it would have direct railway access. The whole of that area would make a splendid General Market, where meat and fruit could be dealt with as well and cold storage provided *ad lib.*, together with other storages and warehousings now carried on at Smithfield, Upper Thames-street, and elsewhere.

"O. B. I. T."

[This has reference to the recent visit to the old arches of London Bridge, as noted in our issue for January 20.—ED.]

INSTITUTE OF SCOTTISH ARCHITECTS.

A MEETING of the Council of the Institute of Scottish Architects was held in Edinburgh last week, when Mr. A. N. Paterson, F.R.I.B.A., Glasgow (President), occupied the chair.—Following a meeting in London of the committee of the Royal Institute of British Architects dealing with the question of housing fees to be shortly dealt with in conference with the Ministry of Health, a report was tabled by Mr. Lochhead, the Institute representative at that meeting, as to the points raised there by him, especially affecting the position in Scotland. The London committee undertook that they would be laid before the Ministry.—Communications from the Royal Institute of British Architects and the Society of Architects, London, regarding the statements recently made by Sir Charles Ruthen, attributing the partial failure of the Government's housing scheme to the attitude adopted by architects, were read, and the Council unanimously agreed to record its concurrence with the repudiation of these statements already made by the Councils of both these bodies.—With regard to the institution of a University degree in architecture, a report was made concerning the steps taken towards that end, and the committee was empowered to take such further steps as might be necessary to bring the matter to a definite issue.

THE LATE ERNEST NEWTON, R.A.

By SIR ASTON WEBB, P.R.A.

IF one were to try to sum up Ernest Newton in one word, one would probably say he was essentially a *sane* man, both in his enthusiasms, his aims, his opinions, and his art, joining in many movements without going to extremes in any of them; a friend of most men, an enemy of none.

Educated at Uppingham, he was articled to Norman Shaw in 1873, when he was seventeen years of age, and with him spent six years, making friends during that time both with his master and his staff. It was to Ernest Newton that when Norman Shaw retired he entrusted the completion of the work he then had in hand, a recognition of which any man might be proud.

In 1879 he started practice on his own account, and soon commenced the long series of delightful English homes, many of which are probably known to every one. It is therefore not my intention to mention them in detail here.

In his work, while carrying on the traditions he had learnt from Norman Shaw, he stamped it with an individuality all his own, so that there is no mistaking an "Ernest Newton" house, and many a countryside has been beautified and enriched by his work. No trouble was too great for him. Every detail of the plan and features of the interior and exterior was studied over and over again, and not left until it was as perfect as he could make it, the gardens and surroundings being equally cared for. The cost, too, was kept in mind, and in due course the client was usually added to the list of his many friends, and the respect and confidence of the builder was assured.

Ernest Newton was one of the five founders of the Art Workers' Guild and an early member of the Arts' and Crafts' Society, in both of which he took an active interest with Lethaby, Macartney, and other old friends from the Shaw office; and later on, with these and many others of the same way of thinking, he rejoined the Royal Institute of British Architects, to the great strengthening of that body. He took an active part in the scheme of architectural education. He was an active member of the Prix de Rome Faculty, and did much to promote the closer union of architects in general and members of the Institute in particular. Though a man with strong views firmly held, he never seemed to be a party man, but to recognise the good there was in everything.

The outbreak of the war found him, as all know, President of the R.I.B.A., and he at once offered his services to the Government, and was appointed ultimately to the very important post in charge of the department regulating building licenses in the Ministry of Munitions, a post he occupied for about three years without payment up to the last few months, and with a judicial fairness that commended itself to everyone. Some idea of the work involved may be gathered from the fact that it entailed some 10,000 personal interviews. He worked early and late, and devoted the whole of his energies to the Ministry; and it is to be feared the anxiety and responsibility entailed weakened his constitution. After the war he returned to his own practice, and was soon doing as good work as ever; but a serious illness intervened which laid him by for over six months, and from the effects of which he can hardly be said to have ever completely recovered. He took a leading part in looking after Belgian architects who were refugees in England during the war, and received the Order of the Crown in token of their gratitude.

In 1918 he was awarded the R.I.B.A. Gold Medal. In 1911 he was elected an Associate of the Royal Academy, becoming a full member in 1919. He entered into the work of the Academy with the same zest he had done in all else, and was a regular and much-appreciated visitor in the Royal Academy Architectural School; only in December last he took an active part in the Award of Prizes at Burlington House. He sat on the Council of the Royal Academy for two years, his term expiring only last December. His judgment there was always reliable and appreciated. His last service to the Academy was to collect the drawings of Norman Shaw, Belcher, Bodley, and others, now on exhibition at Burlington House, a task he undertook *con amore*.

For some time he had been joint editor with his son of the *Architectural Review*, and thrown his accustomed energy into it. He had been for many years a member and regular attendant at the meetings of the Foreign Architectural Book Society, and was always welcome at the Royal Academy Club. At the close of the war he was awarded a Companionship of the British Empire, though his friends had hoped for a higher recognition of his services.

His private life was a happy one. He married in 1881, and two of his sons in his office will carry on his work. One of them (Mr. W. G. Newton) is now President of the Architectural Association. After living at Bickley, he built a delightful little house for himself at Hazeley Heath, Hampshire, but later on returned to London, his last home being in Blomfield-road, Maida-vale.

In Ernest Newton architecture has lost a fine exponent, and the profession an artist typical of what an architect should be: upright, conscientious, reliable, and true; modest and simple in all his ways, but with just that touch of humour that helps so much. He will be greatly missed by us all, and the distinguished group of friends that attended his funeral on Saturday testified to their affection for him.

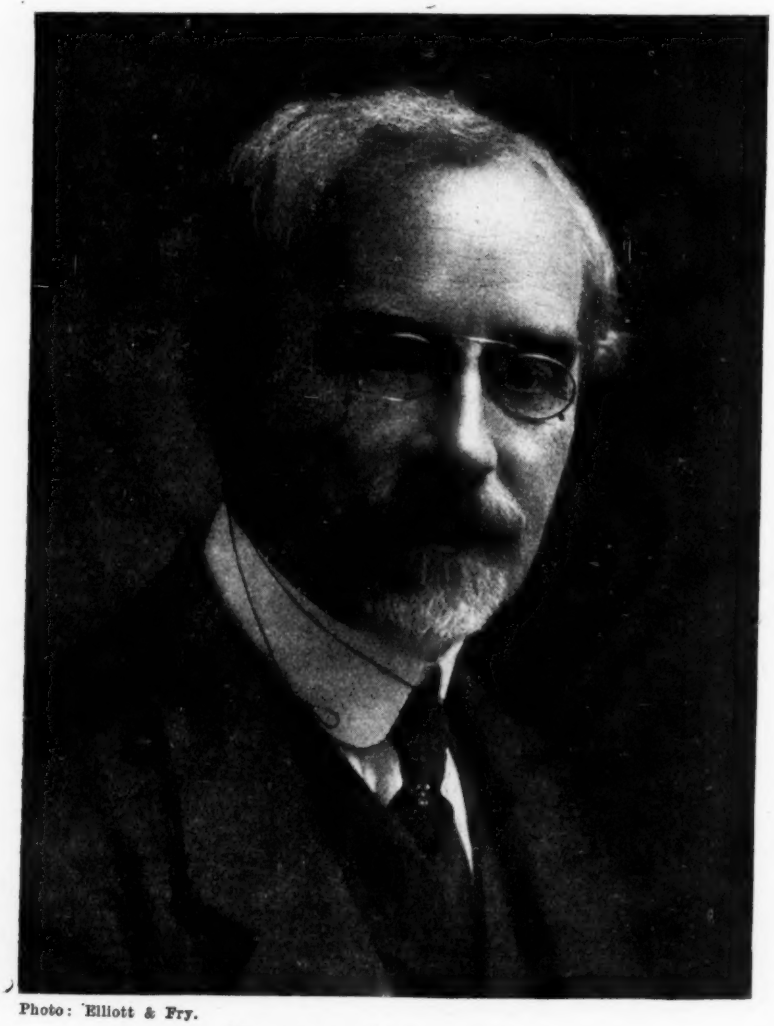


Photo: Elliott & Fry.

The late Ernest Newton, R.A.

Mr. Newton, who was born in September, 1856, was articled to Norman Shaw in 1873,

and after spending six years in the office he began practice on his own account. He became a Fellow of the Royal Institute of British Architects in 1906, and was its President from 1914 to 1917. He was the recipient of the Royal Gold Medal in 1918. In 1919 he was elected a Royal Academician, and was given the honour of the Companion of the Order of the British Empire in 1920. Mr. Newton was also an Officier de l'Ordre de la Couronne (Belgium), Honorary Member de la Société Centrale d'Architecture de Belgique, Officier d'Académie de France, and Membre Correspondant de la Société des Architectes Diplômés par le Gouvernement.

Mr. Newton's work lay chiefly in the direction of domestic architecture, and amongst the houses and other buildings he designed are the following, with the dates on which they were illustrated in *The Builder*:—House of Retreat, Lloyd-square (November 8, 1884); house at Weybridge and additions to "Little Menlo," Beulah-hill (May 26, 1888); St. Swithin's Church, Hither Green—details by Professor W. R. Lethaby (September 28, 1895, and December 26, 1896); St. Barnabas' Vicarage, Beckenham (June 23, 1888); house at Wokingham (August 27, 1898); Martin's Bank, Bromley (December 3, 1898, and December 1, 1900); house at Sutton Coldfield (November 23, 1895); house at Haslemere (November 24, 1896); house at Burley-in-Wharfedale (October 21, 1899); house at Chislehurst (October 26, 1901); "Glebelands," Wokingham (September 14, 1901); "Steep Hill," Jersey (September 28, 1901); house at West Green, Winchfield (June 14 and 28, 1902); lodge and cottages at Overbury (June 25, 1904); house at Wimbledon (May 14, 1904); house at Bickley (June 25, 1904); house at Triscombe, Somerset (April 29, 1905); St. George's Church, Bickley (November 11, 1905); house at Godstone (May 12, 1906); house at Wokingham (September 12, 1908); Dawn House, Winchester (July 17, 1909); Luckley House, Wokingham (July 17, 1909; February 3, 1911; March 3, 1911); "Upton Grey," Winchfield (December 11, 1909, February 3, 1911); Ludwick House, Hatfield, Ardenrun-place, Blindley Heath, and "Four-Acre," Winchfield (February 3, 1911); Oldcastle House, Dallington, Sussex (June 21, 1912); houses at Kingswood and house at Burgh Heath, Surrey (May 16, 1913); house in the Grand Duchy of Luxemburg (October 10, 1913); proposed houses at Goring and Dorking (March 20, 1914); house at Jouy-en-Josas, France (May 8, 1914; May 9, 1919); bank, Lombard-street, E.C., and proposed chapel, Bournemouth (May 7, 1915); houses on Sanders Estate, Denmark Hill, and Whiteley Homes (May 5, 1916); Bullers Wood House, Chislehurst; Upton Grey Manor House; new buildings, Bromley, Kent; the Chapel, House of Retreat, Lloyd-square, E.C., and the stables, Bickley Hall (August 16, 1918); Uppingham School Memorial (June 11, 1920, and May 6, 1921); house at Burgh Heath, Surrey, and "Flint House," Goring (May 7 and 14, 1920); house at Kingswood, Surrey (May 14, 1920); Monastère du Carmel—Messrs. E. Newton, R.A., & Sons, and Mr. W. Nicholls, architects (June 18, 1920; May 6, 1921, and July 15, 1921).

On page 178 we illustrate his bank in Lombard-street, London.

Mr. Newton also took a keen interest in the smoke abatement movement, and an article on this subject from his pen was given in our issue for January 6 this year.

The remains of Mr. Newton were cremated at Golders' Green Crematorium on Saturday last. In addition to members of the family, there were present Sir Aston Webb, P.R.A., Mr. W. E. M. Lamb (Secretary, R.A.), Sir Bertram MacKennal, A.R.A., Sir John J. Burnet, A.R.A., Sir Ambrose Poynter, R.A., Sir Charles Hartwell, A.R.A., Mr. Edward S. Prior, A.R.A., Sir Banister Fletcher, Mr. Guy Dawber, F.R.I.B.A., Mr. Ian MacAlister (Secretary, R.I.B.A.), Professor W. R. Lethaby, and Mr. F. R. Yerbury (Secretary, Architectural Association).

ON Monday last a general meeting of the Architectural Association was held at 34-35, Bedford-square, W.C., under the chairmanship of MR. J. ALAN SLATER.

Election of Members.

At the opening of the proceedings, the CHAIRMAN announced that there were ten nominations for membership, and the following new members were unanimously elected:—

Mr. G. L. Kennedy.	Mr. W. B. Collins.
Mr. Francis Osler.	Mr. C. N. Heath.
Mr. F. A. Richards.	Mr. Alfred Foster.
Mr. J. H. Storrar.	Mr. H. G. Holt.
Mr. J. W. Mayhew.	Miss. V. N. Solly.
Mr. Herbert Freyberg.	Mr. W. L. Wood.

Mr. W. H. Ansell was reinstated as a member.

The Debenture Issue.

The following subscriptions to the A.A. Debenture Issue have been received since the last meeting:—Mr. John Slater, £200; Mr. J. H. Kerner Greenwood, £100; Mr. Walter Clegg, £100.

The Late Ernest Newton.

On the motion of the CHAIRMAN a vote of deep sympathy and condolence was passed to Mr. W. G. Newton (President of the Association) and other members of the family of the late Ernest Newton, R.A., who was a great friend of the Association.

"Ourselves."

MR. H. B. CRESWELL, F.R.I.B.A., in the course of an address on "Ourselves: The Commercial Ideal," said the circumstance that had led to his presence that night was the appearance at the A.A. last year of Mr. Gordon Selfridge. There was much Mr. Selfridge could have told them—much they might have learnt from him of the organisation of retail premises and the lay-out and fitting-up of shops. They would also have liked to have heard from him why, having regard to the principles he advocated, he was so cautious, experimental, and tentative; why his shop was such a small one; and why there were still so many other shops in Oxford-street. It was reported that he was building a tower 500 ft. high to celebrate umbrellas, bathing-drawers, and what not; but 500 ft.! Why only 500? In New York, and presumably elsewhere, there were entire buildings much bigger than that. Those were some of the things Mr. Selfridge might have told them, but instead he brought a message which they might suppose to be one of the newest truths known to American retail trade. The message was that architecture paid the shopkeeper; that it paid him as an advertisement; that it was the function of architecture to advertise the shopkeeper; and that in the interests of architecture the shopkeeper ought to be made the object of propaganda which would nourish him with the great idea. This message was typical of the modern commercial ideal, and it formed a suitable peg upon which to hang his discourse.

He would like to dispose of the proposal to "boost" architecture by innoculating shopkeepers with the idea that architecture paid as an advertisement, and he proposed to do so on the plane on which the proposal was made—that was on the lowest plane, the plane of worldly expediency. In the first place the shopkeeper knew much better than anybody else what was good for him. He had been struggling for years, and was still struggling, to surpass himself and his rivals in the particular of his frontage, and the results were perfectly satisfactory, because they were perfectly natural and logical. The generality of shop fronts were vulgar, pretentious and tasteless, which was exactly what they ought to be, for nearly everything sold in shops pretended to be something different from, and better than, what it really was; or was a substitute, or an imitation, or even a deception. That was not due to individual cupidity, but was an established system, fastened upon the community by the commercial ideal. If it were not for certain Acts of Parliament it would hardly be possible to buy anything under its true description. The picture he was showing was that of the commercial ideal at large untortured by the police, and it was that ideal that the shopkeeper strove to express in his architecture, and so often succeeded in expressing with the help of spurious materials and a spurious architect. It was a remarkable fact that it was those shops that were not mere salesmen's lairs, elevated into notoriety by advertisement, but which lived on reputation and tradition, and where the name over the door was a guarantee of the goods in which the firm specialised, that the architectural qualities of the front were usually satisfactory, and often tasteful; while the old shop fronts which came into existence before vaunting advertisement darkened the outlook for honest endeavour were frequently delightful for their expressive taste. And how could the case be otherwise? How, for instance, could a draper who lent himself to the trumpery deception of pricing nearly every article he sold down to 11¾d. be expected to exhibit good taste in the architectural treatment of his front? Nothing, surely, but clap-trap could come out of him.

The proposal was, then, to initiate an intensive culture among shopfronts; to impose a true architecture where a false had planted itself and dignify purposes which lacked dignity by the glamour of an art whose forms, so far as they were esteemed, owed their expressiveness to the glorious traditions with which they were associated. The proposal was to deck out the relative squalor of shops with the borrowed glories of Greece, Rome, Italy, and so on. The thing could not be done. The beauty or majesty of a building did not depend upon its gratifying prejudices of the eye but upon its raising stimulating trains of meditation in the mind, as Ruskin pointed out more than sixty years ago. Why could a factory chimney by no art be made beautiful, and a lighthouse scarcely escape beauty when no æsthetic principles had been involved in its construction? Why could architecture have nothing to do with refuse destructors or sewage works? Why did it boggle hopelessly with slaughter houses and crematoriums? Why could no one hope to design successfully a municipal public baths in 14th-century Gothic? The reason was the one Ruskin stated as an axiom applying to all building: architecture could not clothe mean or ugly purposes or express a building in forms of which the tradition was repugnant to the purpose of the building. The proposal they were considering was to use architecture to camouflage shops so that their frontages should raise false trains of meditation by obscuring the undignified and trivial or even mean uses of the building; and that to do that would raise the repute of architecture.

Suppose that idea had been put into effect; that propaganda had achieved its disingenuous end; that beautiful towers, each a triumph of architectural skill, raised their proud heads into the sky severally proclaiming "waist shirts," "high shoes," "umbrellas to mend," and so

forth; while in the street below an arcaded Italian niche of Sienna marble panelled in lapis with ormulu caps and bases and an onyx plinth enshrined a tin of curried rabbit marked down from 1s. 1d. to 9½d.! They should not think the picture he painted was unduly grotesque. The highest building in the world, the Woolworth building in New York, which was nearly 800 ft. high, stood for—what? What was the great idea which thus sought to commemorate itself among the monuments of the world? The Woolworth building celebrated the sixpenny-halfpenny bazaar, which sought to exploit poverty with rubbish

Suppose London exhibited forty magnificent commercial towers, emulating in a humble way the elevation reached by the Woolworth building; and suppose those towers were in every case architectural triumphs, proclaiming severally that substitutes paid better than the genuine thing, that, in fine, falsehood was stronger than truth. Suppose those beautiful buildings encompassed us; for how long would we receive pleasure from the vision of them? For just so long, surely, as the glamour associated with the architectural principles they embodied disguised the motive that brought them into existence, and the ideas they stood for, and no longer. So soon as they came to recognise that each of those edifices was a mere flaunting boast, that its motive was insincere, that it raised no trains of reflection from which the mind would not wish to escape, they would hate it and its fellows alike; and soon, from hating the buildings, they would come to hate the architectural forms by which they severally recognised them. Just as architecture was built up of noble traditions, so would it be torn down by ignoble associations; its varied forms would become impotent as a medium for the expression of architectural ideas. How could the debris of commercial usages be availed of for any such purpose? One might with greater hope of success build a cathedral with lumps of furnace clinker! By the time architecture was identified with the coarse triumphs of commerce—which, in fact, would awaken scarcely any human emotion except envy—the art would have fallen into ignominy and obscurity.

He trusted that nothing he had said, or would say, would be taken to imply that the operations of commerce were necessarily or generally dishonest, or that there was anything contemptible in the trade of shopkeeping. He did not hold such a view, nor had he intended to express anything of the sort. But the commercial ideal was subversive of all that gave dignity to life, and of nearly all that made life worth living; it was in direct antagonism to the spirit which had endowed civilisation with the glories of art, science, and letters; it would have made impossible any of the achievements of great men in service to humanity which the world remembered with admiration, gratitude, or even respect; it was destructive of all those influences which had, in the past, bestowed upon mankind such nobility as human nature had attained; and, wherever it ruled, the principle of "veracity of thought and action" would scarcely raise its head out of the mud. The commercial ideal consisted in supplanting the true significance of everything in the world by a false material evaluation. The root germ of it was the worship of success, and the measuring of success in terms of popular notoriety—or money, which were very much the same thing. No achievement the world remembered with admiration was effected in pursuit of success or of power or of money. The large majority of such supreme achievements had never been paid for even on the basis of a living wage, and few by a fee that much exceeded that scale.

To sum up, the commercial ideal was loading the world with products of art and manufacture, organisations, ideas, habits, tastes, customs, which had no justification except that they were incidental to the acquisition of money by individuals. Mankind must produce in order to consume, and the individual must work to live, but the natural impulse of human nature demanded of a man that he should justify himself by producing what was of service to man, or what was beautiful, or what in some way expressed his individual aspirations for the destiny of humanity. That was the natural instinct in man, and they who observed what remained of mediæval craftsmanship knew the truth, as well by evidence of the fact as by the experience of their own hearts; yet, by compulsion of the commercial ideal, a large part of the works of man were not only of no service to humanity, but were a positive disservice, and they would have given no one any satisfaction either in inception or realisation, for no man, as God made him, could set himself deliberately to exploit the ignorance, foibles and necessities of his fellow men any more than he could occupy himself by supplying bad whisky and unreliable dynamite to savages. The commercial ideal, as exemplified among commercial houses who dealt with the productions of artists, was tending to squeeze the artist out of existence. The publisher tried to enslave the author by binding him under one contract to many books, the glass and mosaic manufacturer, house decorating firms, firms dealing in house property, and even firms of constructional engineers, were ready to squeeze out the individual artist, and, with the help of "our Mr. Jones," proclaim themselves the designers of the cathedral window or the architects of the new Georgian wing, and so on. The position would one day be reached when the architect or decorative artist would have great difficulty in existing individually unless he made use of commercial methods to flaunt himself into notoriety—and what sort of artist could that man be? The commercial ideal, if it continued to make way, would render art, as we estimated it, and as the records of the past revealed it, impossible

They could do a great deal to combat that poisonous ideal. They could acknowledge its existence. That was the great point; to keep restlessly aware of the false, ugly thing, to refuse to accept it as inevitable, to refuse to float like straws down the current of life, till they found themselves in a mud hole. Let them test things, examine motives, tear the false thing out by the roots, proclaim the stupid hypocrisy, wave it in the air, expose it, ridicule it, and denounce it, in thought, in their confidences with friends, in their conversation with acquaintances, and on public occasions. So might they alike honour the memory of the men who had given mankind its proudest heritage, themselves, and their calling.

In proposing a vote of thanks to the lecturer, MR. REGINALD HALLWARD said he would like to modify the remarks about the factory chimney; some of the factory chimneys built in the North of England 60 or 80 years ago seemed truly to represent the labour and factory life behind them, and were therefore true architecture—they did not camouflage the factory life lying behind them, but, in a sort of bitterness, represented it fully. So far as commercial buildings expressed and confessed their uses they would be true architecture, but so far as they camouflaged their real uses they were bad, and would not last. If young architects were going to measure their work they should seek what was below rather than above them.

MR. MAURICE E. WEBB seconded the motion, and said it was essential to remember that we were living in a commercial age; we were a nation of shopkeepers, and the job of the artist and architect was to help the shopkeeper to get what he wanted. But architects must not lower their own ideals and standards in order to help the shopkeeper. He thought Mr. Selfridge had done a great deal for architecture, and had shown that a really fine work of architecture could stand on its own without those vulgar revolving lighted signs so often to be seen. The Selfridge building in Oxford-street showed that by a little judicious lighting a building could be made to look as fine by night as by day; Mr. Selfridge's architect had produced a notable addition to London architecture. Referring to the recent address at the Society of Architects by Sir Charles Ruthen, he said he thought that was perhaps the best (or worst) example of the "commercial ideal" that had recently been thrust upon them. He thought Sir Charles could not have been very fond of his profession to have given such an address, and that he must have been jesting when he threw the absurd taunt of profiteering to the whole of the architectural profession. Sir Charles had been dealt with by his own Society most admirably, and the Royal Institute of British Architects was also dealing adequately with the matter. But Sir Charles went on to say that if architects wished to have anything further to do with the housing scheme they must drop the art side and go in for mere brick boxes. He (the speaker) did not believe the public would stand it, and it was a welcome sign that those remarks had been universally condemned by the whole of the architectural profession. At the R.I.B.A. storms of protests had been received, and they would never admit that a beautiful thing was necessarily an expensive one, or that architects were not to try to make good designs for even the smallest working-class house. If that sort of thing were going to permeate a Government department, sooner or later it would permeate the whole of the population. At present it had not got so far as the architectural profession, and the extraordinary indignation caused by the speech was a most encouraging sign. He thought Sir Charles Ruthen had provided an excellent plot for the next A.A. play.

MR. H. T. BUCKLAND said Mr. Selfridge might take his revenge by appointing Mr. Creswell as architect for his next extension; it would then be interesting if Mr. Creswell would again address the Association and give them the benefit of his altered views.

MR. MANNING ROBERTSON said he understood from Sir Charles Ruthen's speech that it was the intention to repeat the "brick boxes" in future housing schemes.

THE HON. H. A. PAKINGTON, MR. T. S. TAIT, and MR. F. E. BENNETT also spoke, and emphasised the necessity for commerce, and for architects meeting the demands of commerce to the best of their ability.

MR. A. S. E. ACKERMAN, M.Inst.C.E., said he had been pleasantly surprised to find how comfortable and convenient office buildings were in America; their system of lifts, lighting, and heating were undoubtedly much better than in this country. Referring to the uses of marble for such buildings, he said he strongly suspected that the pillars in the Association dining-room were not all they pretended to be!

MR. SYLVESTER SULLIVAN said the interest of the architect in shop-front building was to observe the truth, and not be inviegled into being architectural liars.

Replying to the points raised in the discussion, the LECTURER said he was afraid his paper had completely failed in its purpose. But he was quite sure that if he had put the substance of his address in a more practical form they would all have understood him and agreed with him. He noticed that instead of referring to the "commercial ideal" the speakers referred to commerce, a totally different thing. He had nothing to say against commerce, which was necessary, but the commercial ideal was unnecessary and bad. Nowadays everything was a humbug and a sham in the way it was represented. In his reference to Mr. Selfridge he was not speaking personally at all, but of ideals. The whole thing was a question of motive. So far as men were carried to a point where the instinctive motive was coloured by a commercial motive their work was worthless. What had the commercial ideal done for architecture? The development of many of the suburbs and places in the provinces had been carried out solely for gain, and with no thought or care, and if it had not been for restrictive Acts of Parliament many of those places would have fallen down. When architects were asked to design a shop-front they should do their best to dignify it—that was their art. But what would be the result in 100 years' time? When all those fine buildings and towns had been built, where would architecture be?

ARCHITECTS AND HOUSING SCHEMES.

EXPERIENCES OF A HOUSING ARCHITECT.

THE following remarks are the result of the experiences of a housing architect to three local authorities, as follows:—

Local authority No. 1.—Rural District Council; 19 sites selected and purchased; tenders obtained for 12 separate sites; no houses built.

Local authority No. 2.—Rural District Council; 19 sites selected and purchased; tenders obtained for 11 separate sites; 26 houses built on 4 separate sites.

Local authority No. 3.—Urban District Council; one site purchased; no tenders; no houses.

"The Government housing scheme collapsed on account of the high tenders received and the high cost of the houses built. In my opinion those high tenders and costs were primarily due to the bureaucratic conception and conduct of the scheme; precisely as Government interference with and control of coal mining, railways, agriculture, and telephones ruined those industries, so Government interference with and control of the building industry ruined building.

"The evils resulting from bureaucratic interference and which caused high prices were:—

"(1) CONTROL OF PRICES AND STAPLE MATERIALS.—There was no open market for the staple materials (except timber) into which the builder could go and obtain competitive prices. Either the whole of the output had been acquired by the D.B.M.S., as in the case of bricks, or prices had been fixed in official lists issued by the D.B.M.S., as in the case of light castings, glass, drain-pipes, and slates. All these fixed prices had to be supplied to the builders tendering, and those prices plus the standard wage on plans of standard minimum areas to a standard specification fixed the cost of the house. It is true permission could be obtained to acquire certain materials other than through the D.B.M.S. if better terms could be secured elsewhere, but seeing that manufacturers could dispose of more than their output through the D.B.M.S. it was not likely they would supply a private customer at a lower rate.

"Sir C. Ruthen has stated that by controlling bricks the price was kept down; I think the contrary was the case, and that control kept the price up. An open market and a free hand to local authorities to hold up their schemes when necessary would have lowered prices. Sir C. Ruthen has also stated that the D.B.M.S. 'was not responsible for keeping up the prices of materials—it did not control such materials as baths and light castings,' but seeing that the D.B.M.S. issued an official price-list of those goods and that the local authority had to pay those prices to the D.B.M.S., or go without, it is difficult to know what he means.

"Only those who are unfortunate enough to have had experience can appreciate the appalling loss in time, money, and energy caused by the misguided efforts of the D.B.M.S. to control the building industry. Take bricks, for example. A housing contractor required 10,000 bricks, and applied to the architect, who gave him a certificate on an official form. The builder passed the certificate on to the brick manufacturer, who in turn made out an invoice in triplicate, one of which went to the D.B.M.S., one to the contractor, and one he filed. The brick manufacturer supplied the bricks, the D.B.M.S. paid the manufacturer, and sent an account to the Clerk of the local authority. The Clerk sent the account to the architect, who certified it as correct and sent it back to the Clerk. The Clerk presented it to his Council, received authority to pay it, drew a cheque to the D.B.M.S., and entered it on his housing accounts. Meanwhile, the architect must have taken a copy and handed it to his quantity surveyor, who in due course deducted the value of the bricks from the amount otherwise due to the contractor and at the rate current when the tender was made. Repeat this process for drain pipes, grates and ranges, baths, rainwater goods, and glass, and it can be seen why the housing scheme had to collapse.

"(2) STANDARD WAGES AND WAGE BOARDS.—During the war boom the small county town, the centre of this district, was graded "A," thus paying the London rate of wages, and during the housing boom the village builder had also to pay those rates or his men drifted into the town where a large housing scheme provided more work than there were men to do it. In pre-war days plastering and slating were done by the village bricklayer, but as a result of post-war conditions, I found that in all cases in houses I built in country villages these trades were being done by specialist tradesmen from the nearest town, so that actually the work was costing more than in the town owing to travelling time and money.

"(3) STANDARD SPECIFICATION.—The cockney office-boy who compiled this document was probably not an intentional humorist, but it was almost worth the trouble and annoyance it gave to see a country builder studying it or to hear the remarks of a timber merchant when asked for an 8 in. by 2 in. floor joist. The application of this standard specification to houses to be built in villages by country builders naturally resulted in high tenders, and the mischief could only partly be undone after tenders were received, and in some cases after the work was commenced, by the tacit understanding with the Housing Commissioner that the standard specification need not be taken seriously and could be ignored.

"(4) HOUSES.—The 'A' type houses I have actually built in country villages have cost about £850 each, with pigsties, fences, cesspools, and wells, and as they let at 7s. per week each the loss to the State is considerable, especially when the cost of the site is added. Although the houses were primarily built for agricultural labourers, not one of them is so let, the rent being more than the agricultural labourer can afford.

"As the houses themselves, both in plan and construction, have by united effort of the Regional Housing Commissioner and myself been brought to the irreducible minimum, and in appearance are no more than brick cubes with slate lids, Sir C. Ruthen's gibe is particularly hard to bear, and I have yet to see a case under the housing scheme in which his accusation can be justified.

"Outside the housing scheme a flagrant case of money wasted in seeking after a picturesque effect can be seen in this neighbourhood in some 200 houses built by the Ministry of Munitions, in which that department display all those faults and extravagance Sir C. Ruthen attributed to the private architect."

From the many letters received on this subject, we have selected the following for publication;—

SIR,—With regard to Sir Charles Ruthen's recent paper before the Society of Architects, the fallacies in his charges against architects concerning housing are so obvious that no reasonable person could possibly accept the latter as true. Sir Charles, as President of the Society and as an architect, cannot really believe them himself, but Sir Charles as Director-General of Housing is another individual who for reasons of policy may be biassed in his opinions. The really serious thing about this address is that it happens to have been widely reported, and so come to the notice of the general public, who are apt to accept, without analysis or question, what is put before them, not investigating the motives governing such a report. An accumulation of generalities, a vast number of unanswered queries, and sweeping statements constitute the substance of the address; thread of argument is lacking. It is in the general impression which it gives that the greatest harm lies, in that from one in an authoritative position it undermines the growing confidence of the public in architects and the slowly increasing realisation of the Government and the country that good architecture is essential for the amenities of life, and that such can only be produced by the trained specialist. While of the utmost importance and calling for urgent adjustment, the relations of architects to the Ministry of Health seem of lesser moment when compared with this disastrous impression produced by the speaker as to the relations of architects to the general public. Although President of the Society, a Fellow of the Institute, and an architect, Sir Charles for some reason saw fit to belittle his calling at a time when the profession is suffering from years of sacrifice in the country's cause, and when it might ask, with ample justice, for sufficient recognition for all it has undergone in the time of warfare and since.

GEOFFRY LUCAS.

SIR,—As architect to two housing schemes I should like to express my resentment of Sir C. Ruthen's attack as being entirely unfair and without foundation. The real facts of the matter have been already so well stated in the Press that I only wish now to refer to Sir Charles' statement at the close of his reply to the discussion on his address. He there, himself, calls attention to the fact that houses are now being built on the same site, from the same plan and specification, with the same architect, and by the same builder, for a sum within £25 of half the cost a year ago! Is not this the crux of the whole failure of the national scheme, and does not this very fact, which is now the general experience throughout the country, exonerate architects from the charges which Sir Charles has been at such pains to attack them with?

J. ARTHUR SMITH, F.R.I.B.A.

SIR,—That Sir Charles Ruthen's recent address before the Society of Architects should have caused such commotion amongst architects generally was only to be expected by those whose view of architecture couples with it the art and science of building equally joined, so that one does not at any time supersede or displace the other. Directly the two become separated it is only natural that something foreign or extraneous becomes inevitable, and expense undoubtedly arises which ought never to be incurred; particularly is this a reason for legitimate complaint when utilitarian buildings are being designed.

Sir Charles says—and rightly, too—that "people live in houses and not upon them." It is, I fear, only too prevalent amongst architects to visualise the proposed building they are contemplating, prepare elevations and perspective, and then follows the plan with divisions placed in sundry positions to give the requisite accommodation; and so absurdly is this often done that windows grouped for outside effect come at the extreme end of the side of a room. Consequently, such a room, when in use, has to be artificially lighted.

High roofs are unquestionably a temptation the majority cannot resist, and, to effect a supposed saving in the cost by the cubing method of computation, gables and dormers are introduced into the design. I have no hesitation whatever in saying that if the building is carried to the square of the required height of rooms and a simple roof arranged, it will probably be greater in cubical contents but it will not follow that greater expense is to be incurred. Quite the contrary; less expense would be the case—the extra cost of labour and materials not otherwise required in the simpler form of roof would be more than the supposed saving as represented by mere cubical contents.

I may refer to one example in roof work within my knowledge as an object lesson; it is not an example to copy, but one rather to avoid; and it is not a domestic building, but it illustrates my point. A public market building designed by a well-known architect (now deceased) is roofed purely for "architectural" effect by a range of gables on the longitudinal

sides of the two main bays, the result being that outwardly the building looks one thing and inside it is quite different. Indeed, for the first time, an ordinary person would not realise that he was in the same building as that he had seen from the street. In this arrangement, it will be seen that gutters are introduced which never ought to be, where avoidable, demanding lead work with its necessary labour and other incidentals running up the cost, to say nothing of creating troubles that arise in the course of maintenance of buildings.

To put it shortly, architects do not appear to be satisfied with allowing effect to be brought into being by the accident, if I may so put it, of that which is produced arising as a natural consequence in arranging the necessary requirements in each particular case, and only as the outcome thereof.

WALTER PERCIVAL,
Building Surveyor, County Borough of Stoke-on-Trent; Grissell Prizeman and Gold Medallist, R.I.B.A.

[Does the indictment in the last paragraph apply to the profession as a whole? If so, our correspondent is hopelessly wrong.—ED.]

SIR,—Sir C. Ruthen's recent speech, in which he seeks to put the whole of the blame for the failure of the national housing scheme upon the architects concerned, can only be characterised as a grave libel on a profession which has done its level best to aid the Government in the execution of a scheme which was financially unsound, and therefore doomed to failure from its inception. That he should have abused his office as President of the Society of Architects to utter such a slander from the presidential chair passes comprehension, but one need not comment further upon this phase of the incident owing to the fact that the Society has already disowned him, and he has now resigned. That his speech was timed to coincide with the reopening of negotiations between the Ministry of Health and the R.I.B.A. on the subject of fees for abandoned housing schemes is most unfortunate. He also questions what use architects made of their professional knowledge during the war—has he forgotten that the majority of the younger members of the profession officered the Field, Signal, and Works Companies of the Royal Engineers?

The true reasons for the failure of the national housing scheme are:—

(1) The scheme was financially unsound from its inception, and as such did not commend itself to the local authorities.

(2) The Government publications on the subject were so diverse and complicated that the local authorities feared their rates might have to bear part of the burden eventually. (A frank declaration upon this point would have saved many conferences and much time.)

(3) The Government never had any set policy and changed its views from day to day, publishing memoranda upon memoranda until the multiplicity of pamphlets became so great that it required far more time spent upon the study of these to ascertain the housing policy for the time being than to design the actual houses themselves.

(4) The conversion of the old Ministry of Munitions into the Department of Building Materials Supply was a fatal move, and the only reason for its being made was to keep the members of a scrapped Ministry in employment. Prices commenced to rise, the various trades concerned formed rings against the Department, inefficient people were put on to purchase wholesale; the net result was that the Government purchased a large quantity of material, much of it faulty, at very high rates, the commitments upon which account for a large part of the deficit to-day. Much of the material is still on hand, and now that prices are falling (owing to cessation of Government buying) a further serious loss is anticipated.

(5) The very nature of the original Ministry of Health form of Contract D88 fostered increased cost, and proved so unworkable that it had to be withdrawn, because it enabled every contractor who signed to crawl out of all his losses and saddle them upon the nation.

Architects may not be perfect—in fact, I fully agree that a greater knowledge of business methods would be of advantage to both themselves and their clients—but they have always an honesty of purpose that it is sometimes found convenient to forget, and they certainly do not deserve the cowardly blow that Sir Charles has attempted to deal them in order to cover up the incompetence of the department of which he is the chief.

JOHN HAROLD KENNARD.

SIR,—Out of the welter of misleading statements and charges made by Sir Charles Ruthen in the course of his attempt to defend his administration as Director-General of Housing, I should be glad if you would allow me to draw the attention of my professional brethren to the following three points:—

(1) "The fact is the architect consistently ignored the science of his craft and he was taught studiously to do so) and clung tenaciously to the art."

I submit to Sir Charles that the first rudiment of both the science and the art of house designing is the provision of proper light and ventilation to secure a healthy house, and having done so I would call his attention to Ministry of Health Plan No. 253, a copy of which I give. The sheet upon which this plan is issued gives a key-plan for using it in blocks of 2, 4, 6, 8, and 10 houses. In the case of more than two houses there is the usual tunnel passageway between each pair, and in these cases can be seen the idea of a healthy (!) house which is now being taught, studiously or otherwise, by the Ministry under Sir Charles's direction.

Its main virtue lies in the ventilation and lighting. The front door in all except the end houses of these blocks opens into the tunnel passage 3 ft. 9 in. wide; within it there is the usual small lobby (lighted by a borrowed light from the w.c.), from which access is given to the w.c., stairs, and living-room; the staircase has no other ventilation except through the bedrooms, and no other light except from a skylight. If and when built and occupied, the atmospheric condition at the top of the stairs can better be imagined than described!

(2) "Whether architects in the future will be engaged to the extent the profession hopes and expects is another matter."

I have been informed—and probably some of your readers can confirm this—that it is the intention to dispense with architects, quantity surveyors and contractors altogether.

(3) Sir Charles saw fit to denounce steep roof-pitches and gables as examples of what he was pleased to call "profiteering"; yet, if I remember rightly, you illustrated some houses designed by Sir Charles before he became Director-General of Housing which had two gables to each pair and a roof of at least 45 deg., if not a steeper, pitch. If I am correct, was he, in those unenlightened days, "profiteering," or is the change of mind because he was then only an architect whilst now he is "Director-General of Housing"?

"ONLY AN ARCHITECT."

SIR,—I am where I cannot refer to back numbers of *The Builder*, but I doubt not you can easily verify or refute my surmises in the following questions.

(1) Were there not designs illustrated in your journal and other journals some three or four years ago of a cheap method of building small houses by a Mr. Charles Ruthen?

(2) Is that gentleman the Sir Charles Ruthen that now is?

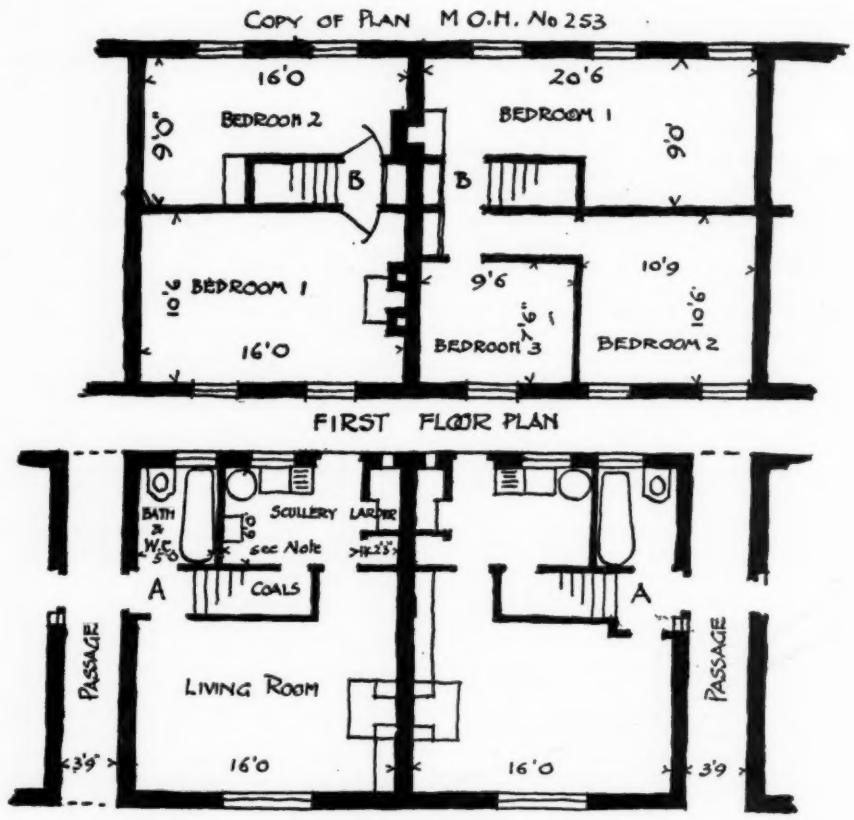
(3) Was not this especially cheap method of building houses a registered or patented method?

(4) Did not the designs for this cheap method contain gables and fairly high-pitched roofs?

(5) If your answers are in the affirmative, a very curious light is thrown on Sir Charles Ruthen's recent remarks, especially his great lament that architects—himself one of them—have failed to realise their prime responsibility to the State—their responsibility not to profiteer, not to build gabled houses, but to give the State the full benefit of cheap houses. Perhaps Sir Charles has something else beside the above to his record for devotedness to the State. Let us *hope* so, but let us *hear* about it.

"AN OLD READER."

[The illustrations referred to appeared in our issue for October 24, 1919, but we are not aware that the designs were patented.—ED.]



["A A": Noted as "ventilated lobby!" "B B": Noted as "skylight over." The scullery is figured as 8 ft. 6 ins., but works out at 8 ft. or 8 ft. 3 ins. if partitions are used instead of 4½ in. walls.]

SIR,—I have been verifying prices of labour and materials in this neighbourhood for the years 1914 and 1920, a list of which I enclose for your information. From this you will see that the actual cost of labour and materials in 1920 was about four times as much as pre-war.

MATERIALS.

1914 (May).		1920.	Increase.
21/–	Bricks, per 1,000	98/2	Over 4 times.
25/–	Cement, per ton	107/9	do.
£12 10s.	Fir in roofs, per std.	£45	3½ times.
£12 10s.	do., Floors, do.	£50	4 times.
22/6	Lime, per ton	70/–	Over 3 times.
18/–	Lead, per cwt.	53/6	3 times.
2½d.	21 oz. sheet glass	10d.	4 times.
8/6	Slates, 100 Welsh, Port Dinorwic	219/9	Over 3 times.
	Penrhyn	289/6	
5/6	Tiles, plain	20/–	Nearly 4 times.

LABOUR.

August, 1914—Labourers, 7½d.; Tradesmen, 10d. From *June*, 1920—Labourers, 2/1; Tradesmen, 2/4. Increase (average) just over three times as much.

The lowest pre-war price at which one could build a satisfactory house containing three bedrooms, bath (with hot and cold water), living-room, parlour, and scullery, including drainage, water supply and gas service, was £250. In 1920, the average cost of this type of house was not more than £1,000, the difference being entirely accounted for by increases in cost of labour and materials, as shown in the accompanying figures, and when it is remembered that the output of labour was much less than pre-war it is obvious that the houses built in recent years have been more economical in design than those of pre-war type.

With regard to the enormous increase in the cost of labour and materials, I do not think anybody can suggest that the architect is to blame, and, in my view, the suggestion made by Sir Charles Ruthen that the architect is to blame for the high cost of building and the failure of the Government housing scheme was made without proper consideration, and is entirely indefensible.

In many housing schemes there were also peculiar difficulties to contend with, which, in some instances actually arose from the shortage of houses. For instance, in one section of a scheme for which I was responsible there was not sufficient local labour to meet the demand, and this labour had, therefore, to be drawn from the nearest town some five miles distant. Owing to the scarcity of houses in the suburb in which we were building, the imported labour could find neither houses nor lodgings locally, and had, therefore, to come from and return to the town every day, which involved eightpence per man per day travelling expenses and one hour travelling time, amounting to practically £1 per man per week, or nearly £50 per house.

Numerous instances of this description have arisen in different parts of the country.

Hull. J. M. DOSSOR.

SIR,—When I voluntarily resigned my position as Regional Architect, Ministry of Health (Region C), some months ago, I little thought that I should feel impelled to protest against an attack made by Sir Charles Ruthen on those architects who have been the undeserved target, or, shall I say, convenient "scapegoats," of his remarks.

Perhaps my experience as a Regional Architect from the inauguration of the Government housing scheme gives me more right to speak than even Sir Charles, with his few months' melancholy task of smashing the housing scheme. I know too well the insuperable difficulties with which local architects have had to contend when coming in contact with the ever-changing requirements of the Ministry.

Sir Charles Ruthen can find all this out for himself if he will shake off the bureaucratic atmosphere of Whitehall (in which he is apparently fast losing all his sense of equity) and spend but one month at any of the Regional offices and wade through the interminable correspondence, from start to finish, of even one local housing scheme.

I make no apology for speaking on behalf of the great body of architects who time and again found weeks, if not months, of labour thrown away until they had lost all heart, all enthusiasm, with schemes held up or scrapped owing to some further change in the policy of the Government. I know of more than one architect who for over a period of two years have been altering and rearranging their plans to conform to some new requirement of the Ministry.

As regards Sir Charles Ruthen's remarks on architects' extravagance, very few such cases came under my notice. The majority of the plans submitted embodied the ideas indicated in the Manual; and I doubt if any architects indulged in external features which could not be found in that publication, or in the sheets of typed plans which were published shortly afterwards. As for profiteering, how many times were architects called upon (through no fault of their own) to revise and replan, with the satisfaction of knowing that fees were being based upon the final drawings only? What of the interminable times they have had to travel (in many cases long distances) to the local Regional office to discuss yet another point raised by a new requirement? How many times were the requirements of the Ministry changed between the approval of sketch plans and the final working drawings?

I should also like to mention another side of the question, which has apparently been overlooked, *i.e.*, the numberless, but very necessary, meetings with the housing committees, women's advisory committees, &c., of local authorities. Admitted that conferences with officials of local authorities were part of the work included in the scale of charges as laid down in Memoranda 4 and 31 (now, apparently, to be regarded as "scraps of paper"), at the same time it was never realised the amount of time and energy which, due to a great extent to Government change of policy, would be expended on these meetings.

I can honestly say that my two-and-a-half years' experience as Regional Architect has proved to me that the great majority of architects of housing schemes have been the hardest worked, and are likely to be the worst paid, body of men connected with these schemes.

Sir Charles Ruthen should really cease to be a politician; he is intended for something better than that, and will surely only gain the goodwill of his fellow architects when he is prepared to do justice to them.

TRAVERS PICKMERE, A.R.I.B.A.,
(*Late Regional Architect, Region C, Ministry of Health*).

"Architectural Design."

We regret that a word was left out from the report of Mr. F. Radford Smith's paper on "Architectural Design" in our last issue, which seriously affected the meaning of a sentence. The last phrase of paragraph 7, column 1, should read, "and they must never be used *otherwise* or they would not be artistically logical."

BIRMINGHAM ARCHITECTURAL ASSOCIATION.

ARCHITECTURE AND HERALDRY.

THE seventh general meeting of the Birmingham Architectural Association was held at the Society of Artists' Rooms, Birmingham, on January 27, when Mr. W. Gurney Benham, F.S.A., gave an illustrated lecture on "Heraldry in connection with Architecture."

Mr. Gurney Benham claimed that though there was a science of heraldry, quite interesting to the historian and the antiquary, heraldry was also an art, and that its artistic side was worthy of more attention than it received. There were unnecessary technical terms in heraldry, but the best modern heralds disregarded much of the old jargon. The rules of heraldry were fairly easy to master, but the art presented more difficulty, and it was largely owing to the modern neglect of the artistic capabilities of heraldry that it was not more used. It could be made delightful to the eye and the mind, and could be made to give expression and language to buildings. Mr. Benham illustrated this by a series of lantern views showing examples of heraldry as treated by such artists as Albert Dürer and others. He also displayed what he described as a lifelike and recognisable portrait of Sir John de Birmingham, who was born in the 13th century, mentioning that his armorial "coat" formed part of the Birmingham City Arms. His armorial bearings, shown partly by the crest on his helmet, and his surcoat, together with the heraldic achievement repeated on his horse's trappings, made him easily recognisable on the field or in the tournament. Examples were given of the humour of heraldry and its use in expressing and commemorating history, national and local. A picture of the Birmingham City Arms was shown, and the lecturer urged his hearers to give the city armorials more artistic and effective treatment than they had received. Mr. Benham gave a striking example of the wealth of meaning which lies unsuspected in many coats of arms by expounding the ancient borough arms of Colchester, dating back to the early years of the 15th century. This simple device combines no less than five mediæval legends of great interest. In conclusion he urged upon architects the advisability of studying heraldry and mastering its rules and principles. If they would become heralds, they would promptly realise the great freedom and license which were part of heraldry, and the artistic opportunities which it offered.

At the close of the lecture, a vote of thanks to the lecturer was proposed by Mr. A. Harrison, F.R.I.B.A., seconded by Mr. B. J. Fletcher, and carried unanimously.

Architects' and Surveyors' Assistants' Professional Union.

Australia House, Strand, was a brilliant scene of many-changing colours on Tuesday evening last, when upwards of 200 members and guests, the bulk of whom were in fancy dress, attended the Fancy Dress Ball held by the Architects' and Surveyors' Assistants' Professional Union. Amongst those present were Mr. F. R. Yerbery, Secretary of the Architectural Association, and Mr. M. Kiddy, Secretary of the Concrete Institute. The prizes which were given for the best costumes were distributed by Mr. Yerbery, and were won by the following:—First, Mrs. W. H. Jackson as "Chanticleer," and Mr. Karl Vernon as "Cavalier"; second, Mrs. J. A. Gould as "White Rabbit," and Mr. W. H. Jackson as "Farmer"; in addition, special prizes were presented to two ladies representing "Thatched Cottages." Other striking costumes were "Bubbles," "Indian Chief," "Aladdin," and "Lady of the Harem." Great credit is due to Messrs. W. H. Hamlyn, A.R.I.B.A. (Chairman of the Social Sub-Committee), A. P. Althorp (Master of Ceremonies), and Mr. W. H. Jackson (Secretary, London Branch, A.S.A.P.U.) for the excellent arrangements and a most enjoyable evening, which everyone agreed was a great success.

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ILLUSTRATIONS.

Housing in Holland.

In Rotterdam the houses built before the war were chiefly built as flats from two to four stories high, the accommodation of each house comprising living-room, kitchen and three bedrooms. A considerable number of improved buildings of this type have been erected on a balcony system, with staircases for every five or so dwellings, and experiments are being carried out with central heating. Blocks of these flats are usually built around a central courtyard planted as a public garden.

The Heyplaat Estate of the Rotterdam Dry Dock Co. includes a meeting hall, a bath and washhouse building, a house for unmarried men (consisting of 24 separate bedrooms with common dining and sitting-rooms), fire station, recreation building, workshop, private and public schools, library, and 400 houses. Each house has a character of its own, some grouped around courtyards and others situated on winding roads with attractive features at every turn. Each has its own garden.

Other garden suburbs are being built near Rotterdam. In Amsterdam blocks of balcony dwellings four stories or more in height have been built. These blocks are well-designed, a simple and natural architectural treatment being usually obtained by the use of different varieties of bricks and varieties of bond, diagonal courses, &c. Mansard roofs are frequently used, covered with interlocking tiles of grey or black.

Working-class houses in Holland are very simply planned, with a consequent decrease in cost. There are usually only one or two fireplaces in each house and only one tap. The w.c. is placed in the middle of the house and badly ventilated, and the bedrooms often open off the living-room. No bathrooms or baths are provided, and hot water is hardly ever laid on. The heating is always by a closed stove, usually burning fuel of a slow-combustion nature, and is located in a central position, so that it will heat the whole of the house.

Hastings Music Pavilion.

We illustrate the first premiated design in the Hastings Music Pavilion Competition, by Messrs. Hugh T. Morgan and C. Cowles-Voysey, AA.R.I.B.A.

The promoters of this competition asked for the impossible, and they are to be congratulated on having secured a design which comes so near its achievement. The difficulties of a restricted and inconveniently-shaped site and an insufficiency of money were added to by the necessity for incorporating as an integral part of the design a room nearly 40 ft. high in a style entirely foreign to this country.

These and other difficulties the winners have overcome in an admirable design, whose very simplicity might mislead one into the belief that their solution was easy and obvious. The elevations, fulfilling two vital tests of all good architecture, truly express the plan and clearly indicate the nature of the building. They show a charming design in keeping with the best traditions of Hastings architecture. They achieve simplicity without dullness and dignity without being pompous.

Undeniably the plan is not without its faults, but the blame for these should, we think, be placed rather on the conditions of the competition than on the authors of the design, who are, we do not doubt, fully aware of those faults and could soon eliminate them were the necessary funds at their disposal. We trust, however, that whatever improvements may be made in the plan the pressure of uninformed criticism will not induce the promoters to insist upon any changes that would be out of keeping with the quiet simplicity of the design to which the assessor (Professor S. D. Adshead) has so justly awarded the first place.

The authors of the design write: "The winning plan is the outcome of a careful study of the site and surroundings and of the promoters' requirements, while the elevations represent the straightforward expression of this plan, not embellished with a meaningless display of ornament, but relying rather on balance and proportion for their æsthetic appeal. On mature consideration a north and south axis, with the main entrance as the central feature of the south front, was clearly indicated, the possibility of providing direct exits from the auditorium at five widely separated points being one of the chief practical advantages of such an arrangement. Having decided these main essentials, the problem resolved itself into planning a hall of the necessary size and its adjuncts within the available depth of the site, and in keeping the probable cost within the stipulated figure.. To accomplish this last certain sacrifices had to be made, notably in the liberal provision of gangways and in the height of certain subsidiary rooms. The design cannot be classified as belonging to any specified 'style.' It is an attempt to carry a step further and adapt to the modern requirements of a specific case the eighteenth-century tradition so well exemplified in much local work—a tradition too long lost in a riot of inferior composition smothered in worse ornament."

Paisley War Memorial.

We also illustrate the first premiated design in the Paisley War Memorial Competition, by Sir Robert Lorimer, A.R.I.B.A., architect, and Mrs. G. A. Meredith Williams, sculptor.

Labour-Saving House.

We also illustrate this week the three premiated designs, by Mr. P. D. Hepworth, A.R.I.B.A. (first), Mr. P. D. Hepworth and Mrs. J. Dreschfield (second), and Mr. Alfred Williams & Partners (third), in the Labour-Saving House Competition.

MEETINGS.

FRIDAY, *February* 3.

British Institute of Industrial Art.—Public discussion on Art in Industry: Furniture. At North Court, Victoria and Albert Museum, S.W.7. 4.30 p.m.

SATURDAY, *February* 4.

Architectural Association. — Visit to New County Hall, S.E.1. 2.30 p.m.

MONDAY, *February* 6.

Royal Institute of British Architects.—President's address to Students. Presentation of Prizes. At 9, Conduit-street, W.1. 8.30 p.m.

Surveyors' Institution.—Discussion on Mr. W. R. Davidge's paper on "Problems of Greater London." 8 p.m.

TUESDAY, *February* 7.

Royal Institute of British Architects.—Special General Meeting on Unification and Registration. 5.30 p.m. (*See p.* 179.)

Liverpool Architectural Society.—Mr. Austen Hall on "American Departmental Stores." At 13, Harrington-street. 6 p.m.

WEDNESDAY, *February* 8.

L.C.C. Central School of Arts and Crafts.—Sir Banister Fletcher on "English Mediæval Architecture: Parapets, Ornament, Fittings." At Southampton-row, W.C.1. 6 p.m.

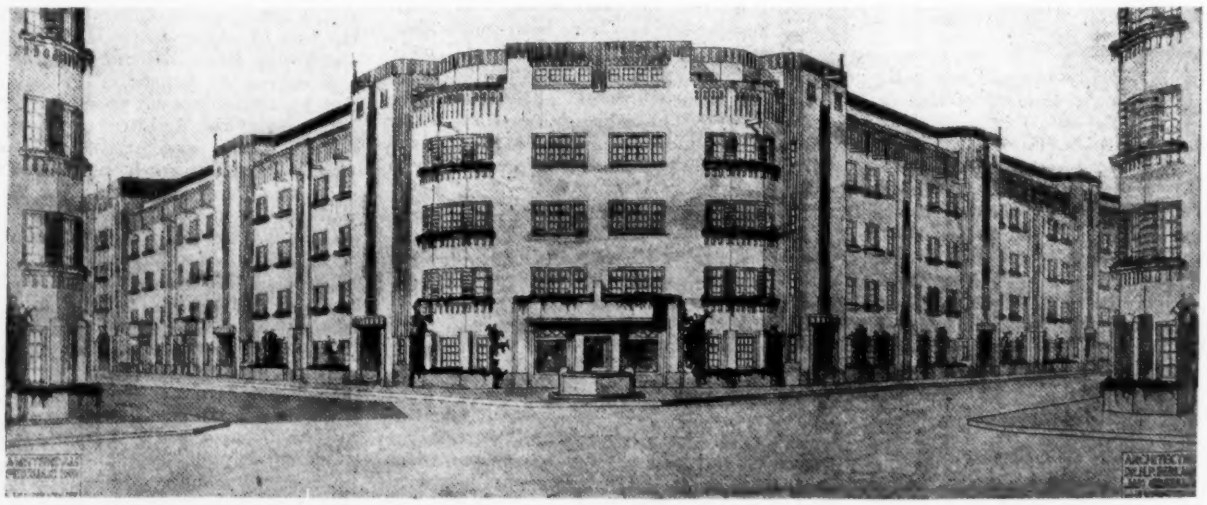
Edinburgh Architectural Association.—Mr. J. W. Archer on "Foundations." At 117, George-street. 8 p.m.

Manchester Society of Architects.—Mr. A. J. Hope on "The Architect and the People." At St. Mary's Parsonage. 6.15 p.m.

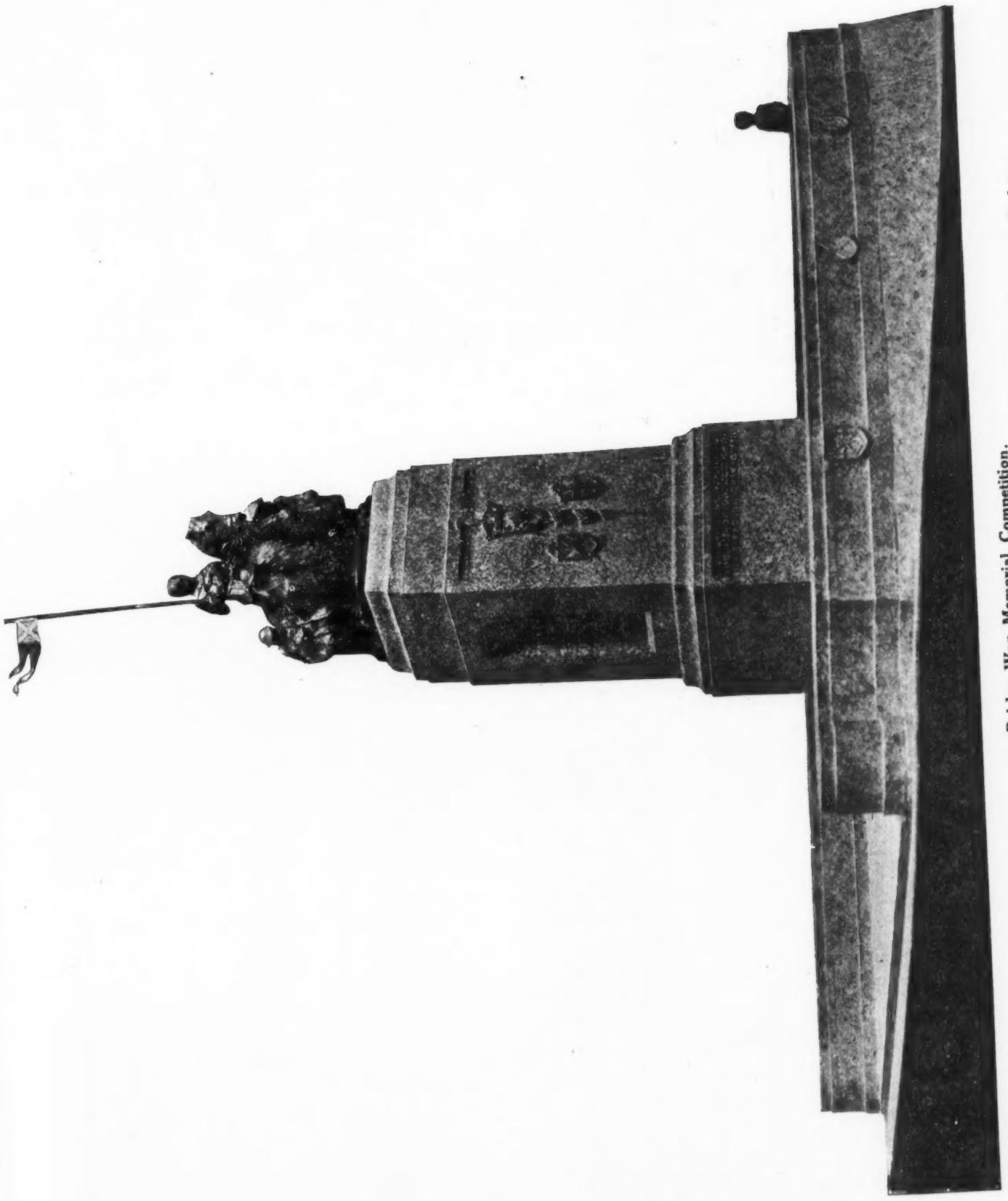
University College Lectures.—Mr. Martin S. Briggs on "Historical Building Construction: Concrete and Marble." At University College, Gower-street, W.C.1. 6.15 p.m.

THURSDAY, *February* 9.

College of Estate Management.—Professor S. D. Adshead on "Town-Planning." 5.30 p.m.



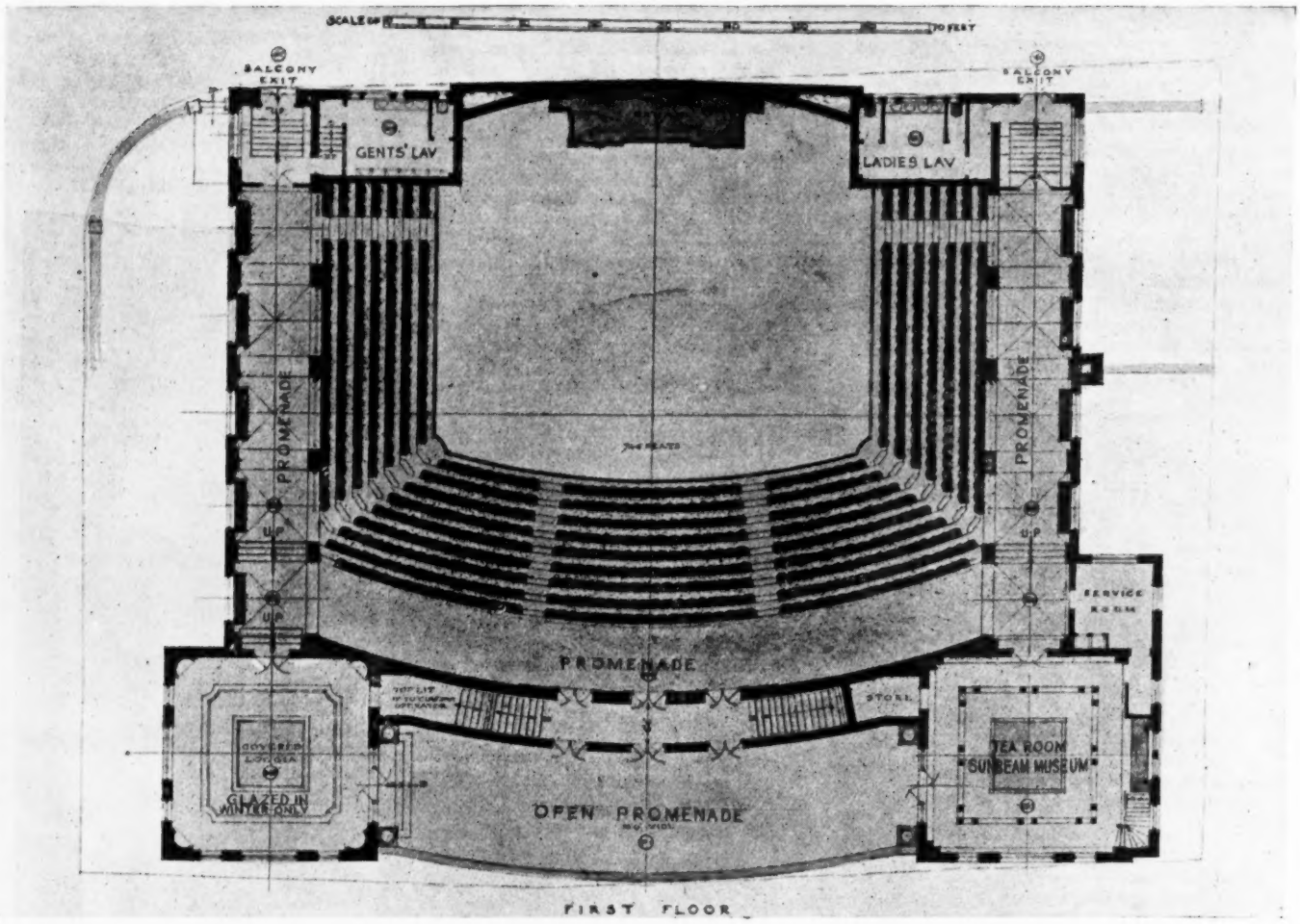
Municipal Dwellings, Amsterdam. MESSRS. H. P. BERLAGE & J. G. EN. G. VERSTEEG, Architects.

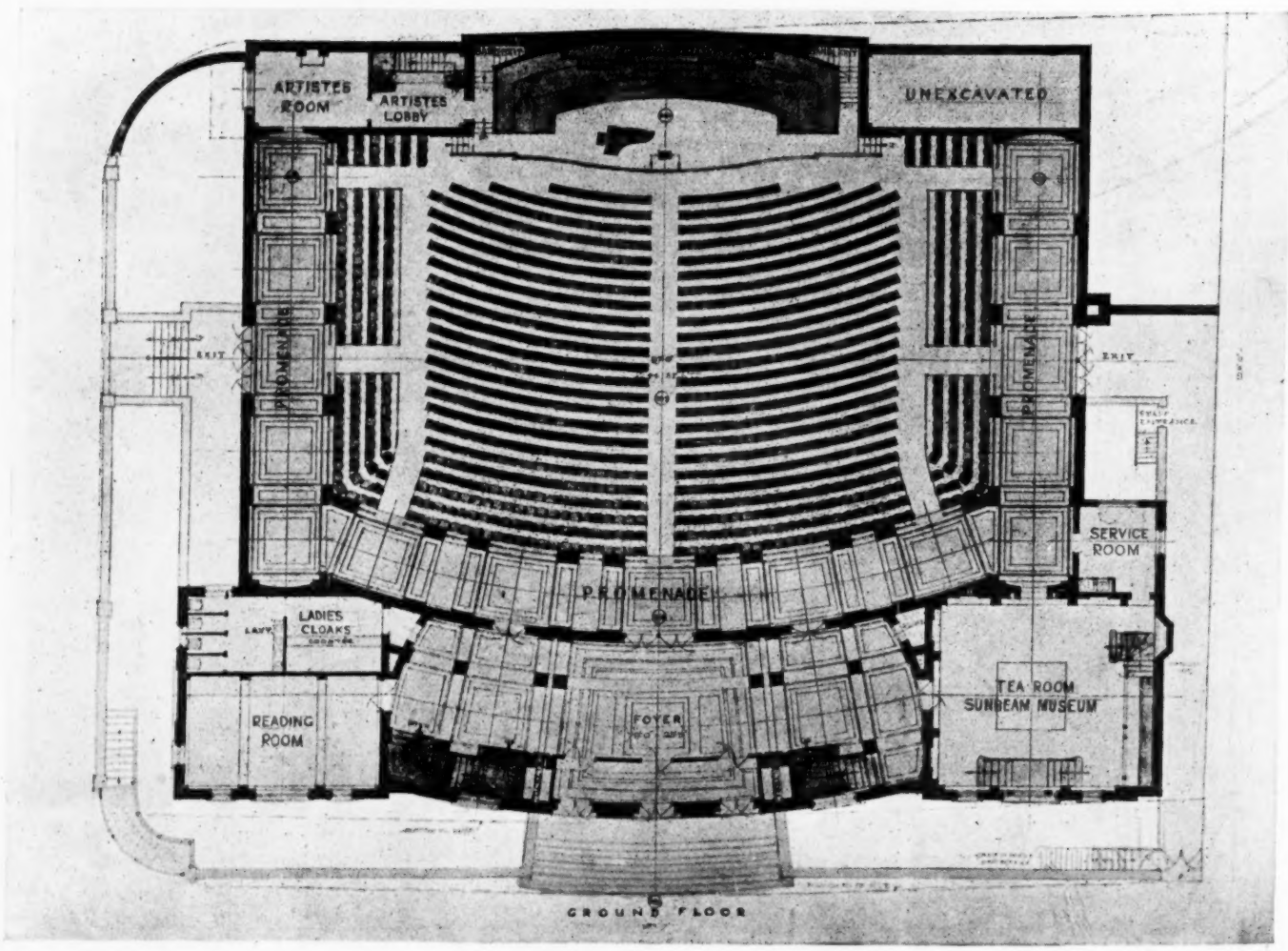


Paisley War Memorial Competition.

First Premiated Design. SIR ROBERT LORIMER, A.R.A., Architect; MRS. G. A. MEREDITH WILLIAMS, Sculptor.

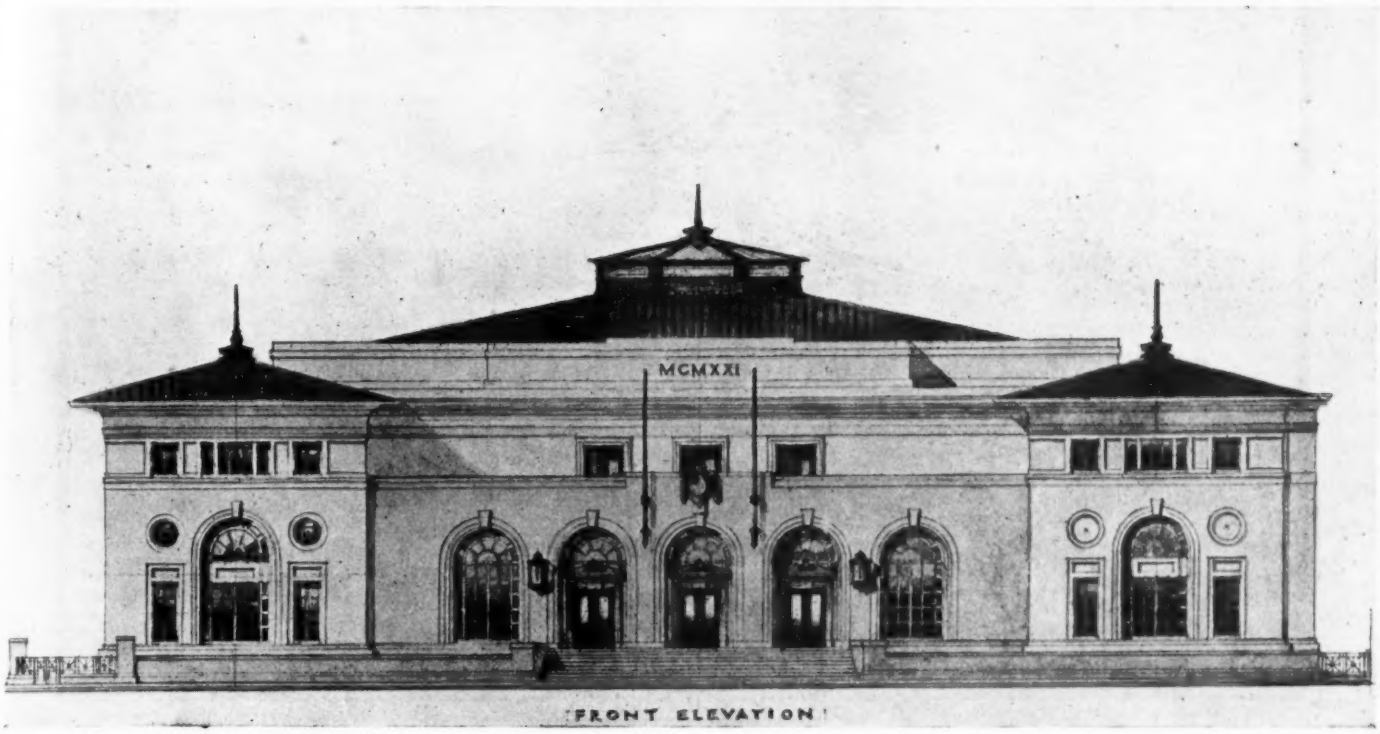
Photo: J. Douglas Ritchie.



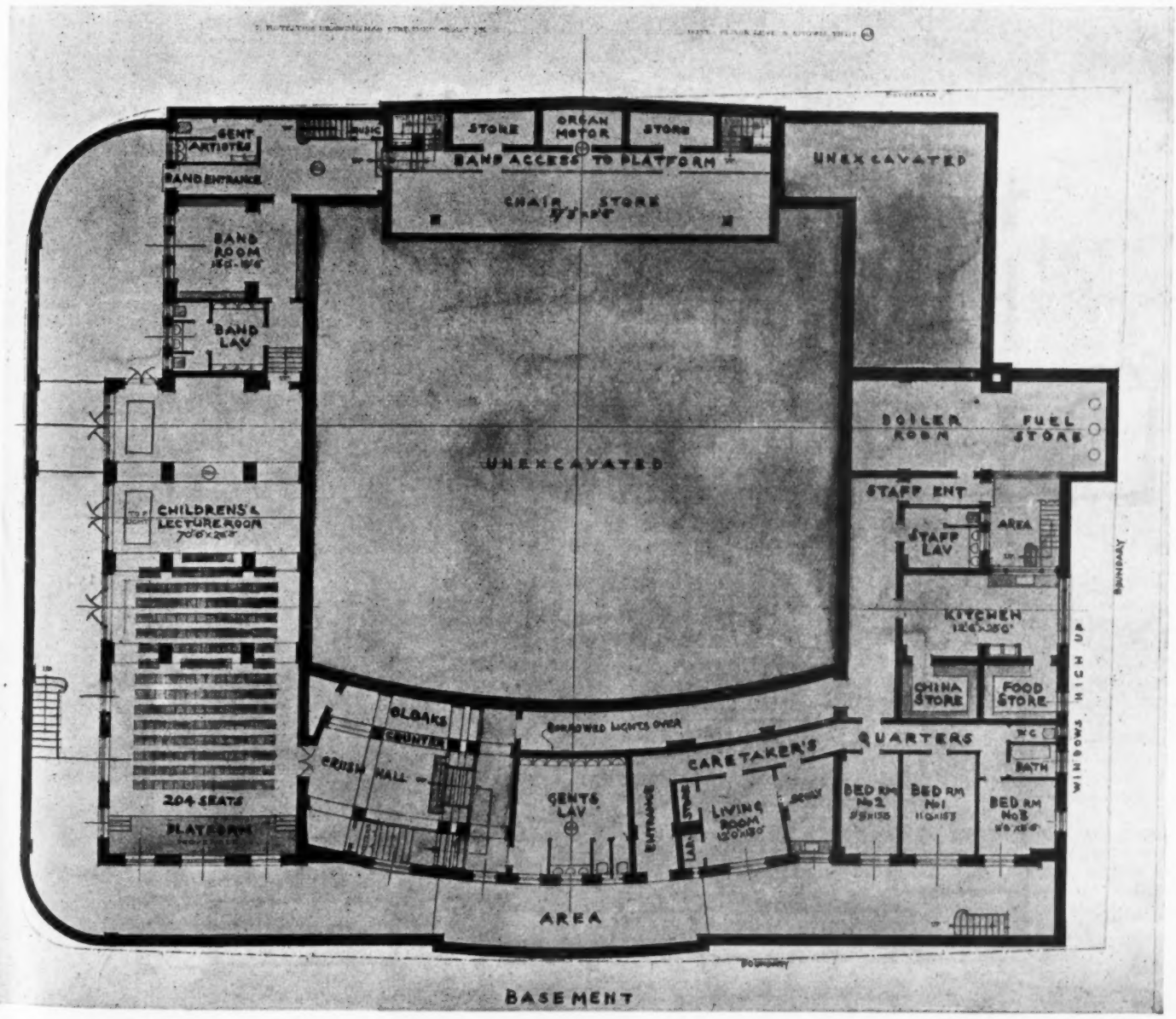


Hastings Music Pavilion Competition.

First Premiated Design, by MESSRS. HUGH T. MORGAN & CHARLES COWLES-VOYSEY, AA.R.I.B.A. (*See p.* 186.)



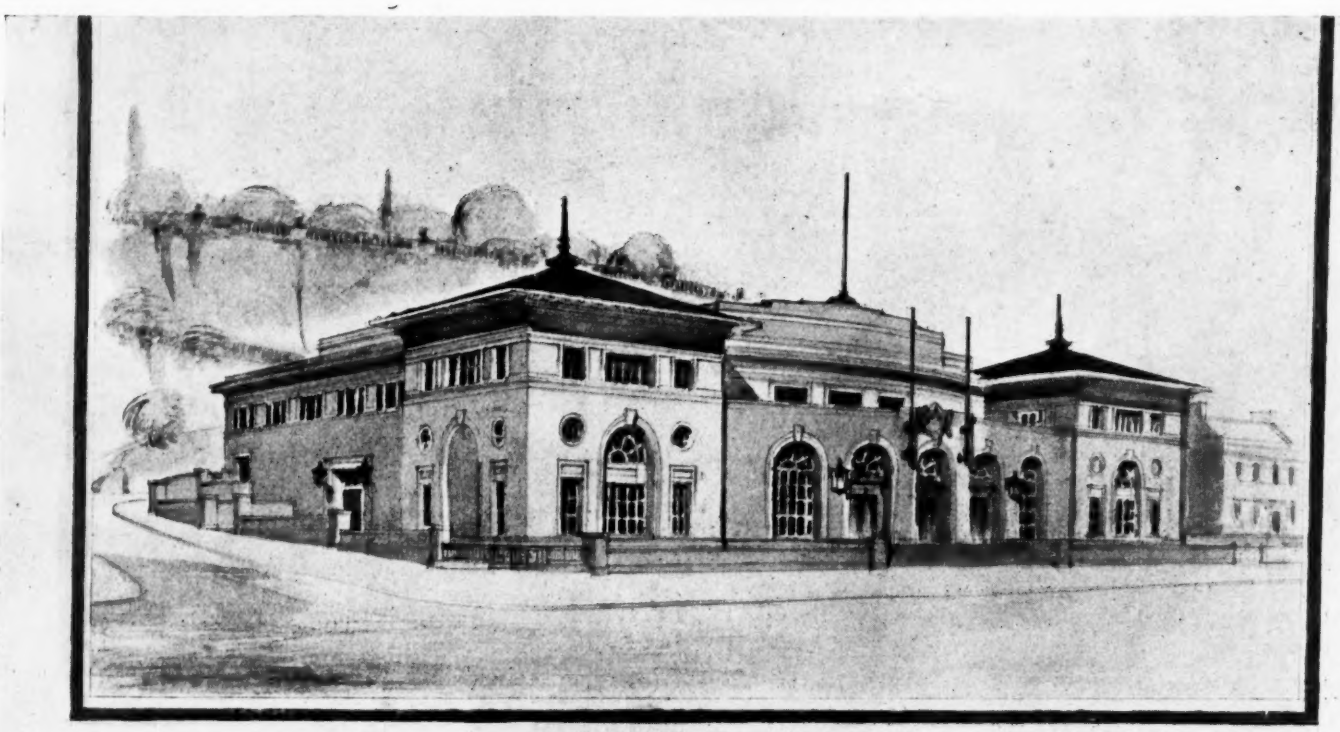
FRONT ELEVATION

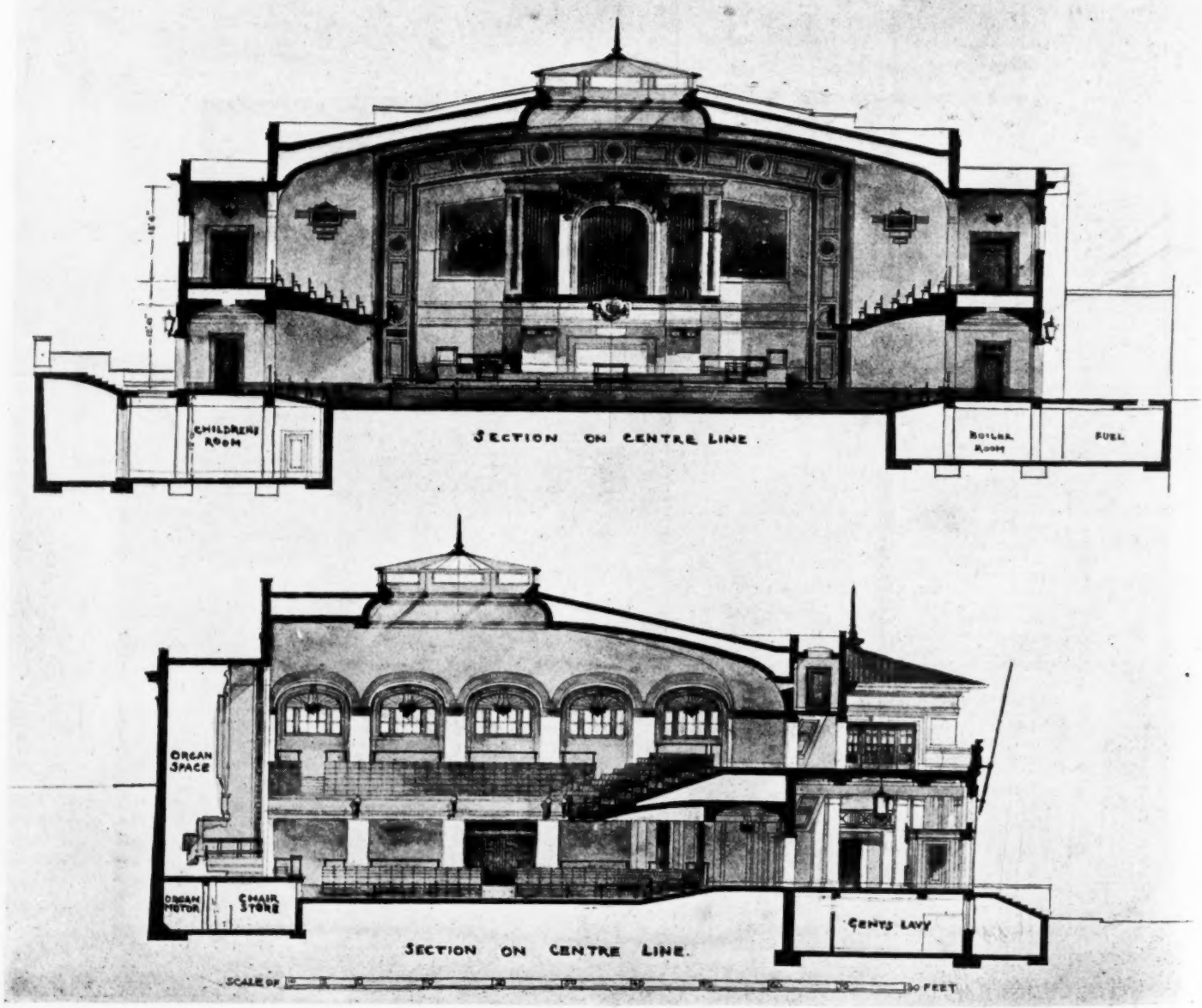


BASEMENT

Hastings Music Pavilion Competition.

First Premiated Design, by MESSRS. HUGH T. MORGAN and CHARLES COWLES-VOYSEY, AA.R.I.B.A. (*See p.* 186.)





Hastings Music Pavilion Competition.

First Premiated Design, by MESSRS. HUGH MORGAN & CHARLES COWLES-VOYSEY, AA.R.I.B.A. (*See p.* 186).

LONDINIUM: ARCHITECTURE AND THE CRAFTS.—II.

BY W. R. LETHABY.

BUILDINGS AND STREETS.

"*Set we forward friendly together, so through Lud's-town march;*
And in the temple of great Jupiter
Our peace we'll ratify; seal it with feasts,
Set on there!"—CYMBELINE.

Basilica.—In 1880 the extensive foundations of an important building with massive walls were found on the site of Leadenhall Market, and a survey of the ruins made by Henry Hodge was published in *Archæologia* (Vol. 66). This great building was exceptional not only in its scale but in its manner of workmanship. I know no other case where the walls of a building had wrought and coursed facings like the City wall (Fig. 1).

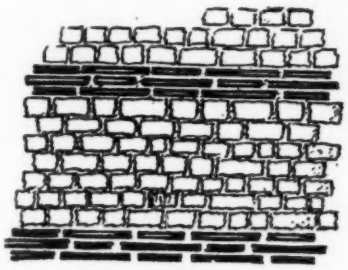


FIG. 1.

In 1881 Mr. E. P. L. Brock exhibited at a meeting of the British Archæological Association "plans of excavations recently carried out in Leadenhall Market, showing the foundations of an apse 33 ft. wide and indications of four different conflagrations. He also exhibited fragments of fresco painting with ornamental patterns. . . . The building appears to have had the form of a Basilica in some respects, with eastern apse, western nave, and two chambers like transepts on the south side" (*Archæol.* 66). From the wording of this it appears that Brock meant that the building had a general resemblance to an early Christian church. Mr. Lambert in publishing Hodge's drawings in *Archæologia* seems to have understood Brock to mean that it was the Civil Basilica of Londinium. This indeed I have no doubt it was, but at the time Brock wrote such buildings in Britain were hardly known.

The Civil Basilica or Public Hall was generally the "complement of the Forum; it was, in fact, a covered Forum used for commerce, exchange, and administration, or simply as a promenade" (Daremberg and Saglio). At Silchester the Forum and Basilica filled an "island" site, about 315 ft. by 280 ft., at the centre of the city. The Forum was a quadrangle included within a single row of buildings having a colonnaded walk on the inside, while the Basilica occupied the fourth side facing the central avenue of the town. It was 233 ft. long by 58 ft. wide, and

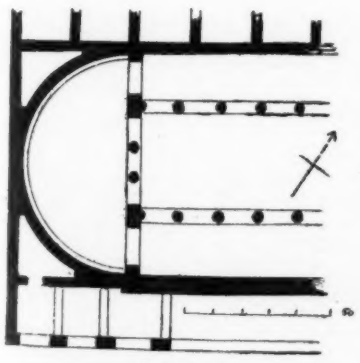


FIG. 2.

was divided into a "nave" and "aisles," the former being terminated at *each end* by a large apse. In the interior were two ranges of Corinthian columns about 3 ft. in diameter, some capitals from which are now in Reading Museum. Cirencester Basilica was still larger, being about 77 ft. wide divided into nave and aisles by fine Corinthian columns; at one end a great Hemicycle embraced both nave and aisles. It must have been a noble building (Fig. 2 is a restored plan of one end). At Wroxeter the Basilica was 67 ft. wide divided into nave and aisles by ranges of Corinthian columns.

The columns in the interior of the Basilica at Caerwent were also of Corinthian fashion: the shafts were 3 ft. in diameter and decorated with a leaf pattern. Under the floor were wide sleeper walls, one of which ran across the front of the Tribune. The exterior was covered with reddish-brown plastering and the interior had painted decorations of large scale.

The Basilica at Verulam had a very long hall 26 ft. wide and about 360 ft. in length. From it three great chambers opened at right angles. The central chamber was 40 ft. wide. The others were 34½ ft. wide, having apses at the farther ends included within square outer walls. There was evidence that these side chambers had been vaulted. Some painted wall plaster was found, and it was clear that the whole of the interior walls and vaults had been painted mostly in floral designs in dark olive green and other colours. Fragments of drapery indicated that there had been figures also. In front of the Basilica was a great quadrangle court, with a block of masonry on the central axis, which can hardly have been other than a pedestal for a statue (see V. C. H.).

The Basilica at Treves is built wholly of tile-bricks, and was once covered with red plaster, of which some fragments remain in the window jambs. It is about 240 ft. long, having six bays recessed between pilasters each containing an upper and a lower window. A large apse exists at one end about 40 ft. wide. It has been restored to serve as a church, and is a noble building, big and bare. The British Basilicas, so far as they are now known, were of the following dimensions in width. The English measures may probably be equated with Roman feet as suggested. Silchester 58 (60); Caerwent 62 (65); Wroxeter 67 (70); Cirencester 78 (80); Chester 76 (?).

The foundations discovered on the site of Leadenhall Market represented some very large and exceptional structures. The following account is condensed from Mr. Lambert's description in *Archæologia*. "The plans show at the eastern end a quarter-circle of 27 ft. 7 in. radius, which seems to represent the eastern apse mentioned by Brock, and in continuation of its southern line, a wall about 150 ft. long, having the extraordinary breadth of 12 ft. 7 in., runs to the line of and apparently underneath Gracechurch-street. . . . From the south side at the east end, spring at right angles three walls, which doubtless enclosed the 'two chambers like transepts' mentioned by Brock. . . . It is probable that work of different periods is included in this plan . . . . The northern half of the great wall appears to be brick, the rest stone or rubble, as though one wall had been built along the face of another. . . . It is clear from the drawings that the bulk of the eastern portions of the remains is homogeneous in structure. The extra thickness of the great wall and the fragments of solid brick walls at either end of the site represent perhaps later additions. . . . These remains form the most extensive fragment of a Roman building recorded within the Walls of London." From the thick mortar joints of the brick walls Mr. Lambert concludes that they were probably built in the third or fourth century. The more or less alternating use of red and buff bricks, as I have already suggested, is also evidence that this part of the work should be assigned to the fourth century. Concrete, tesselated and herring-bone floors were found, also flue-tiles (Price, *Athen.* 1881).

Some of the bricks used were of larger size than the ordinary, being 20 in. by 12½ in., and the drawings show that they were carefully laid with alternate headers and stretchers (Fig. 1). They were 1¾ in. thick, and four courses made 10½ in.; the joints were thus about 1¼ in. thick. At the Guildhall is a fragment of brickwork from Leadenhall Market, with bricks and joints both 1½ in. thick. The stone walling was of concreted rubble, with facings on each side in small, roughly-wrought but carefully coursed stones; the layers of bonding tiles passed through the thickness of these walls. A large drain ran parallel to the outer south wall about 4 ft. wide, including its brick sides.

The general plan shows a total length from the apse at the east to the broken wall at the west against Gracechurch-street of about 210 ft. About 44 ft. to the north of the Great Wall a parallel wall is shown on the plan, but no details are given, and it may not have been Roman.

The interior curve of the *upper wall* of the apse had a radius of about 22 ft., and the width of a central "nave" agreeing with this cannot have been less than 50 ft.; the total internal width, supposing there were "aisles" in line with the "chambers" at the end, would have been about 110 ft. There were thick transverse walls across the front of the apse, and again about 20 ft. to the west. I give (Fig. 3) a plan adapted from *Archæologia*; the walls shown black were not necessarily all above the floor

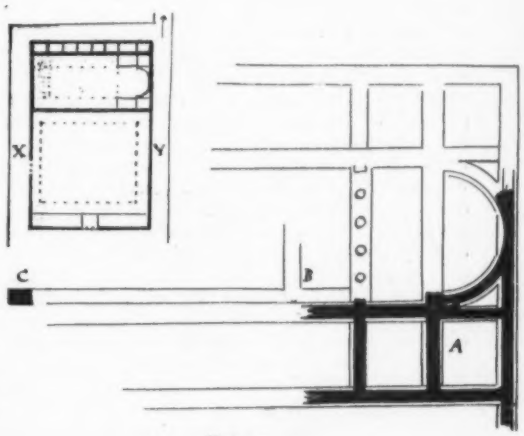


FIG. 3.

level, although they are thinner than the lowest foundations. (Note that in the plan in *Archæologia* the scale is given in divisions of 12 ft. and not of 10 ft. as usual.)

My plan is restored as a possible reading of the evidence; the most certain parts are those in black (A); the foundations (B) may be of a different age; at the left (C) is the brick pier or wall against Gracechurch-street.

A structure not less than 110 ft. wide with a central avenue of 50 ft. would have been exceptional; on the other hand, a Basilica 220 to 250 ft. long including the apse would have been rather short. Walls found to the west of Gracechurch-street do not seem to have been in the line of those on the Leadenhall Market site, and one of them was bent in its line as if it might have been against a stream. The nature of the site might have dictated a rather short and very wide building. It should be noticed that the line of Gracechurch-street is nearly or exactly at right angles to the great building. Hodge's drawings show that the walls of Leadenhall Market were built directly on the Roman foundations, and hence square with them.

The Basilica would have had ranges of Corinthian columns and perhaps a transverse row on the foundation in front of the apse, as at the Basilica Ulpia in Rome and at Pompeii; compare also the transverse walls at the Basilicas of Cirencester and Caerwent. The roof would probably have had trusses of low pitch exposed

to the interior like those of the early Christian churches.

In 1908 a Roman wall 3½ ft. wide *parallel* to Gracechurch-street, was found at No. 85. In 1912 a fine Roman wall, 4½ ft. wide, running north and south was found just south of Corbet's-court; turning at right angles it passed under Gracechurch-street. It was of rag-stone with double courses of tiles; the base was 27 ft. below the present level; a piece of thinner wall ran close and *parallel* with the roadway (*Archæologia*, 63). Kelsey noted that in 1834 massive walls were found in Gracechurch-street from Corbet's-court to the head of the street (*Archæologia*, 60).

The discovery was announced on January 10 this year of a wall 2¾ ft. thick of rag-stone and bond tiles "in the centre of Gracechurch-street a little south of the Cornhill crossing [to the west or left of Fig. 3]. A length of about 10 ft. has been disclosed following the central line of Gracechurch-street. The presence of this Roman building in the middle of the highway proves that the mediæval street did not follow the line of the Roman street. Close at hand is Leadenhall. When the present market was reconstructed excavations disclosed remains of an important Roman building. It is probable that the remains now unearthed are associated with the same group of buildings." Another wall, 4½ ft. thick, was found at right angles to the thinner wall; the finds were at a depth of about 13 ft. This building, which must have been part of the Basilica or adjacent to it and square with it, was thus as far west as the middle of the street, and doubtless farther, for the thinner wall in association with a thicker one would not have been an external wall.

The smaller inset plan on Fig. 3 is a very visionary reading of the possibilities. A street in line with Fish-street-hill and the Bridge, which I will call *Axis-street*, could hardly have pointed to the centre of this great building, but rather by its west end as suggested (X). If this is too far west for the *Axis-street*, then we must suppose that it was directed towards some point in the south front of the Forum. (It is desirable that all the walls found in this locality should be accurately laid down on a plan.) A parallel street to the east, which I will call *North Gate-street* (Y), would not be in continuation with *Axis-street*. The question whether Bishopsgate and Gracechurch-street represent a Roman street from the Bridge to the Gate has been much argued over (see *Archæologia*, 1906), and it seems to have been shown conclusively that the northern part of the line was not. The southern part, however, must, I think, represent the Roman street from the bridge, although it may later have been bent aside to tend more directly to Bishopsgate. The facts and the fault in the line may be reconciled in some such way as suggested. (Hodge's drawings are in an old Gardner collection; it would be interesting to know what other Roman records are included.)

Beyond the statement quoted from Brock no identification of the building is offered in *Archæologia*, and Mr. Bushe-Fox thought that if the walls were contemporary they could not belong to a Basilica. "If there were a nave with two aisles and an apse there would be no reason for the cross wall, nor for the excessive thickness of the side wall. The building had perhaps been a bath; the wall which ended abruptly at the west end was probably a flue for heating the apse and the large drain would be accounted for" (*Proceedings*, 1914-15). That the building was indeed the civil Basilica of Londinium is proved to my mind by: A comparison of the plan with those of other British Basilicas—notice the way that the apse is within straight external walls and compare Fig. 2; by the great scale of the work; by its central position in the city; by the scale and character of the construction; by the fact that the only possible alternative seems to be the supposition that it was the great Bath of the City, and for this neither the planning nor the situation seems suitable; by the exceptional wall decorations described below; by the fact that a tile bearing the official stamp PR-BRITON was found on the site (Price). It is a remarkable fact that Leadenhall was the market and the Crossing at Cornhill was the carfax of London during the Middle Ages.

We have seen above that Brock said that fragments of painting were found on the site. In the British Museum are four pieces of wall-painting, given by Mr. Hilton Price—1 and 2 in 1882, and 3 and 4 in 1883; the first pair are said to be from Leadenhall, the second pair from Leadenhall Market. 1 and 3 are fragments of large scale scrolls of ornamental foliage of a fair gray-green colour; 2 is a piece of large scale drapery and 4 is part of a life-sized foot. These four remarkable fragments evidently form one group and came from the Basilica. The large scale of the ornament and figure work differentiates these pieces of painted plaster from all others found in London. At Silchester and Cirencester fragments of marble wall linings have been found on the sites of the Basilicas, and some of the fragments in the British Museum may have come from our Basilica, which must have been a handsome, indeed splendid, civic centre. In the Forum would have been statues of Emperors and in the Basilica some impersonation of Londinium itself (*cf.* the fragment of such a figure found at Silchester).

Houses.—In 1869 a mosaic pavement was discovered in Bucklersbury which is now at the Guildhall (*Builder*, May 15 and 29). It was fully described in a volume by Price. The floor was that of a small round-ended chamber and belonged to a building on the west bank of the Wall Brook. Around the apsidal end of the room which had the mosaic was a wall of stone and chalk, built upon piling; this wall contained the flues of the heating system and it

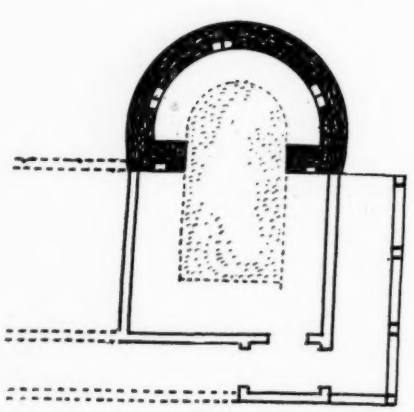


FIG. 4.

terminated in piers at the ends of the semi-circle. From the fact that no more walling was found and the evidence of an attached lobby which had a wooden sill around it, we may suppose that the rest of the house was of timber work (Fig. 4). The curved apse would be a strong form in which to build a detached mass of wall to contain the vertical wall flues; and it is an interesting example of building contrivance. We have already seen that timber and clay construction was frequent in Londinium. Near this building a well was found (built of square blocks of chalk, *The Builder* says). The building with the mosaic must have been a superior house on the bank of the Wall Brook. To the west, as we shall see, seems to have been a street of shops; we can thus imagine a little group of buildings and streets, and a bridge over the Walbrook at the end of Bucklersbury.

The well mentioned above is one of a great number which have been discovered; for instance, in excavating for Copthall-avenue "a pit or well, boarded, and filled with earthenware vessels," &c., was found. (*Builder*, October 5, 1889.) Such wells with boarding like a long barrel have been excavated at Silchester. Again to the south of Aldgate High-street two wells were found. (*Builder*, May 3, 1884.)

(*To be continued in our next issue.*)

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

Unification and Registration.

The Council of the R.I.B.A. has received a written requisition, signed by the required number of members, asking that a special general meeting be called, under By-Law 65, to discuss the following motion: "That this meeting is of opinion that the conditions for the unification of the profession should form part of a Registration Bill, and that the present system of admittance to the Institute, including compulsory examination, should continue in force until a Registration Bill be passed." Notice is accordingly given that a special general meeting will be held at 9, Conduit-street, W.1, on Tuesday, February 7, at 5.30 p.m., when the above-mentioned motion will be submitted. (See letter on p. 179.)

Exhibition of Prize Drawings.

About sixty students from schools of architecture were present at the special students' evening at the exhibition of prize drawings in the Galleries of the R.I.B.A., held on January 25. Mr. Maurice E. Webb conducted the students around the drawings submitted in the different competitions, giving valuable information on each. Mr. Webb took the opportunity of holding a brief discussion with the students on the subject of the prizes and studentships system.

The Cambridge School of Architecture.

A number of architects who are old Cambridge men have just formed a club with a view to helping, wherever possible, the work of the Cambridge School of Architecture. As a first step they have agreed to double the donation of £50 given this year by the R.I.B.A. to the funds of the School, and they propose in future to meet once a year, either in Cambridge or London, to establish relations with the staff of the School and to keep in touch with its work generally. Mr. Maurice E. Webb, F.R.I.B.A., has been elected Chairman of the Club and Mr. J. Alan Slater, A.R.I.B.A., Honorary Secretary and Treasurer.

THE SOCIETY OF ARCHITECTS.

Sir Charles T. Ruthen.

The following statement has been issued on the instructions of the Council of the Society of Architects: "Following the resolution unanimously passed at a special meeting of the Council of the Society of Architects, held on January 18, 1922, dissociating themselves from the views expressed by Sir Charles T. Ruthen (the President) in his paper on 'The Architect and the State,' and other resolutions unanimously passed at the same meeting, Sir Charles Ruthen attended a meeting of the Council of the Society, held on January 26, 1922, and tendered his resignation as President, which was accepted by the Council."

The late Ernest Newton, R.A.

At a meeting of the Council of the Society of Architects, held on January 26, 1922, the following resolution took precedence of all other business: "That the Council of the Society of Architects deplore the death of Mr. Ernest Newton, and desire to express their sense of the loss occasioned thereby to art in general and to the art of architecture in particular, and also their appreciation of his personal and professional qualities, and his invaluable service to architecture and to the community."

Annual Dinner.

The annual dinner of the Society of Architects, which had been fixed for February 22, 1922, has been postponed *sine die*.

HISTORICAL BUILDING CONSTRUCTION.—II : BRICKWORK.

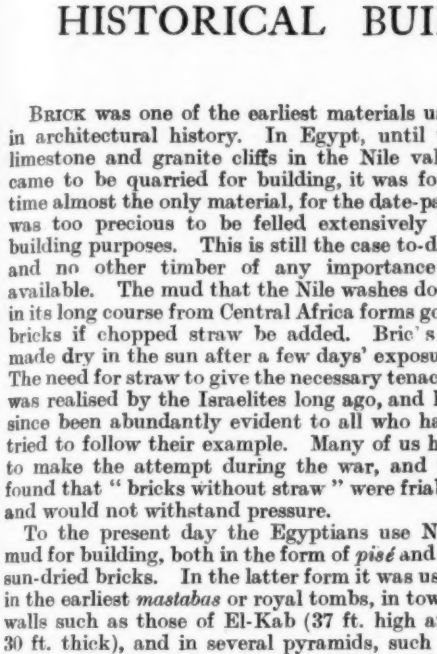
By Martin S. Briggs.

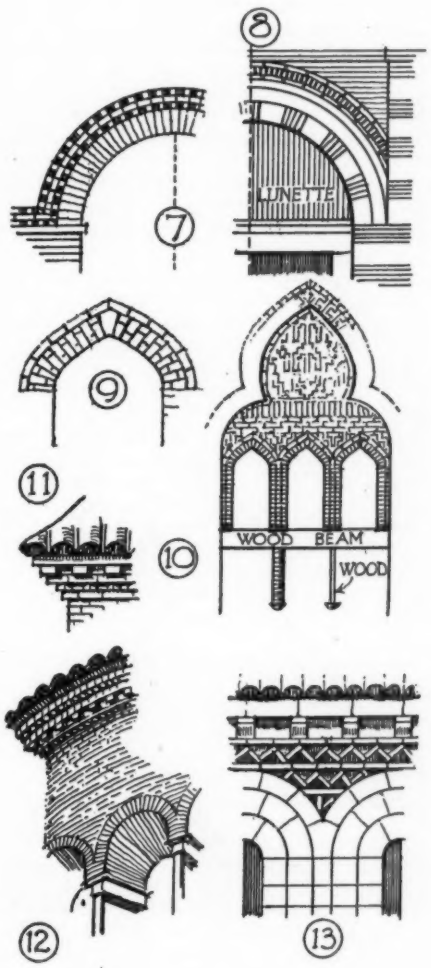
Brick was one of the earliest materials used in architectural history. In Egypt, until the limestone and granite cliffs in the Nile valley came to be quarried for building, it was for a time almost the only material, for the date-palm was too precious to be felled extensively for building purposes. This is still the case to-day, and no other timber of any importance is available. The mud that the Nile washes down in its long course from Central Africa forms good bricks if chopped straw be added. Bricks so made dry in the sun after a few days' exposure. The need for straw to give the necessary tenacity was realised by the Israelites long ago, and has since been abundantly evident to all who have tried to follow their example. Many of us had to make the attempt during the war, and we found that "bricks without straw" were friable and would not withstand pressure.

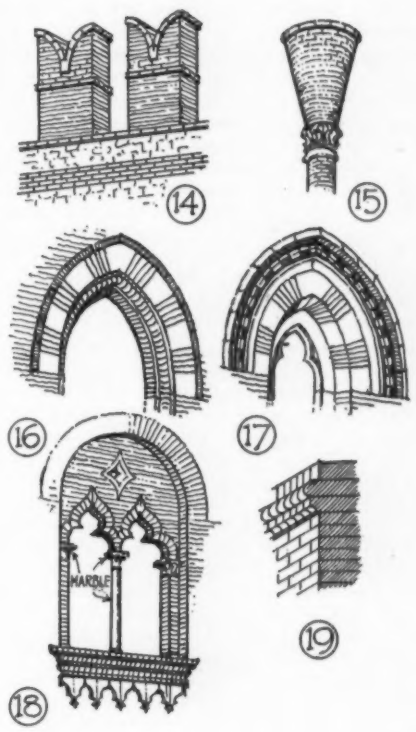
To the present day the Egyptians use Nile mud for building, both in the form of *pisé* and as sun-dried bricks. In the latter form it was used in the earliest *mastabas* or royal tombs, in town-walls such as those of El-Kab (37 ft. high and 30 ft. thick), and in several pyramids, such as that of Hawara (XIIth Dynasty), though that was faced with stone. No foundations were used, though piles were employed in certain cases. But whereas on dry sites the bottom courses of walls were laid direct on a sand bed, on sites liable to inundation at "High Nile" the walls had their bottom courses laid to a slight curve to prevent the superstructure sliding. (Fig. 1.) At Philæ the same thing has been done in heavy masonry. Various forms of bonding were used in the walls (Fig. 2), "English bond" among them. Layers of grass, sometimes plaited, were often used to give tenacity to the wall. The bricks varied in size, but the length was generally double the width, and the thickness at least 4 in. The beds were about 2–5 in. thick, and were made of sand to allow of settlement. In addition to brick walls, the Egyptians constructed arches and vaults of brickwork (Fig. 3), always with a view to economy in timber centering.

Conditions in Assyria were very similar, the rich soil of Mesopotamia furnishing admirable material for sun-dried bricks, but these were laid while still moist and allowed to dry *in situ*, unlike the Egyptian practice of previous drying. From somewhere further east, perhaps Tibet, came the idea of burning bricks. Large, flat, burnt bricks of regular sizes, marked with the name of the reigning king, and laid in bituminous damp proof mortar from Chaldea or in mortar made from lime and ashes, were used in positions liable to damp from inundated soil or from the external action of weather. Vaults of such bricks were constructed from very early times, as shown in the sketch (Fig 4). This method was long followed in Mesopotamia, and was used later in vaulting the great hall at Ctesiphon (*c.* 550 A.D.) with a span of 86 ft.

In pre-Hellenic and Hellenic Greece sun-dried bricks were used almost entirely for the construction of dwelling-houses, the walls having a bottom course (or plinth) of rubble masonry. Mud was used as a jointing material, and timber beams were built in, forming a sort of half-timber framing. The surface was plastered. Such methods were in use in very early times (*c.* 2600–2400 B.C.) in Crete, at the palace of Tiryns (*c.* 1400–1200 B.C.) and in later temples at Olympia.







According to Vitruvius, Greek bricks were about 1 ft. in length and 3 in. thick.

From the writings of Vitruvius it is clear that the Romans before the Augustan age used only sun-dried bricks for general purposes, reserving burnt bricks for positions exposed to the weather, such as copings, &c. The use of burnt brick seems to have followed their eastern conquests, which brought them into contact with Mesopotamian methods. Vitruvius writes at length as to the various qualities of brick-earth and their liability to disintegration by weather. He recommends that bricks should be moulded in the spring or autumn (to allow of gradual drying and so to avoid cracks) two years before they are required! Obviously there is no question of burnt brick here. There is other evidence in his writings that confirms this view. He describes a method of bonding for what we should call a "1½-brick" wall. The sketch shows a probable interpretation (Fig. 5).

Augustus boasted that he found Rome brick and left it marble. He certainly may have found it largely built of sun-dried bricks, but what he left was a city of great concrete buildings with skeletons of burnt brick, faced with marble. And all the remarkable features of Roman brickwork are so closely bound up with concrete construction that they are better treated in Article IV (under the head of "Concrete") than in this overcrowded article.

Byzantine architecture is an essentially brick style, which is natural when one considers its origin in the later work of Rome and in that of the Eastern nations. Not only are the domes of St. Sophia, St. Mark's, and the other chief Byzantine churches composed of burnt brickwork, but so also are their walls of brickwork, without any attempt at concealment, for the plaster and marble facings of the exterior are in most cases later additions. But before long these bare brick exteriors came to be ornamentally treated, with shallow arcading that may have been the prototype of this most characteristic feature under the Lombards, and with dentil-courses and bands of plain bricks ingeniously placed to give a pleasing contrast of light and shade. (Figs. 6, 7, 8, and 11.) Brick and masonry were used in alternating bands and voussoirs for the same purpose, as will be explained more fully in Article IV.

In the Saracenic architecture of Egypt, which may be taken as typical of Muslim work elsewhere, brickwork was used on a large scale during at least two periods of its history. The ninth-century mosque of Ibn Tulun at Cairo was the first mosque where antique marble columns were not used to support the aisles or colonnades, their place being taken by brick piers and arches. The origin of this form of construction is found in the slightly earlier mosque at Samarra in Mesopotamia, where Ibn Tulun was educated. The large piers, 8 ft. by 4 ft., had brick shafts worked on their angles and bonded in to the main mass. The bricks were properly burnt, and were laid in lime mortar with wide joints. English bond was used. The whole of the walls were covered with stucco, ornamentally treated. Fig. 9 shows a stone arch of this early period, obviously inspired by brick construction.

The use of brick was revived in Egypt after the Turkish conquest in 1517, when the so-called "Delta style" was evolved in Damietta, Rosetta, and the other old towns of the Delta. Bricks were arranged in various patterns—blue, black, and other darkly-coloured bricks being used to heighten the effect. Every sort of bond and arrangement was used, with or without mortar,

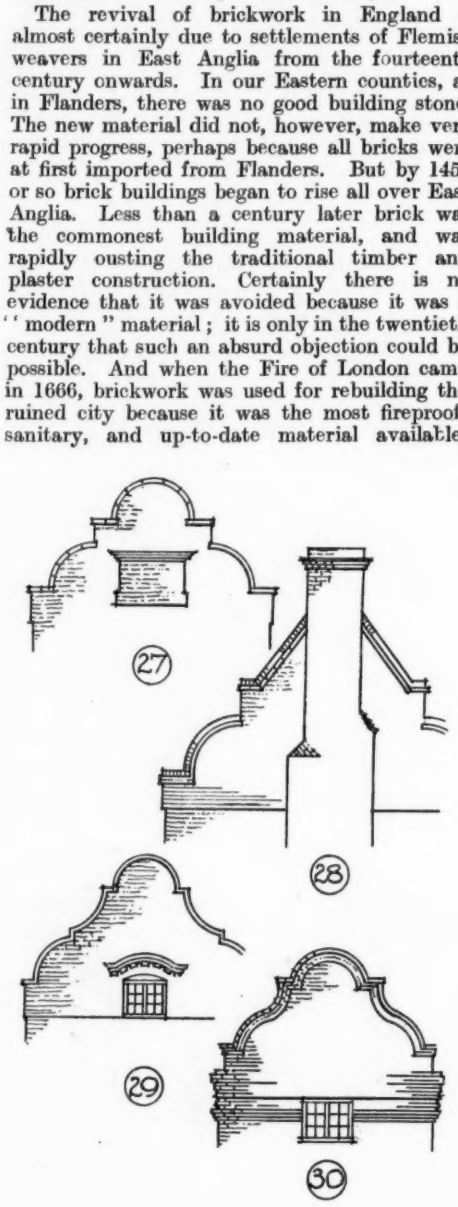
but the joints were always pointed afterwards in white mortar to enhance the effect. Over the rich brick portals were fixed "candles," that is, cylindrical pendants of brickwork formed by stringing hollow circular bricks, like beads, on to a light wooden rod with a flat knob at its lower end (Fig. 10).

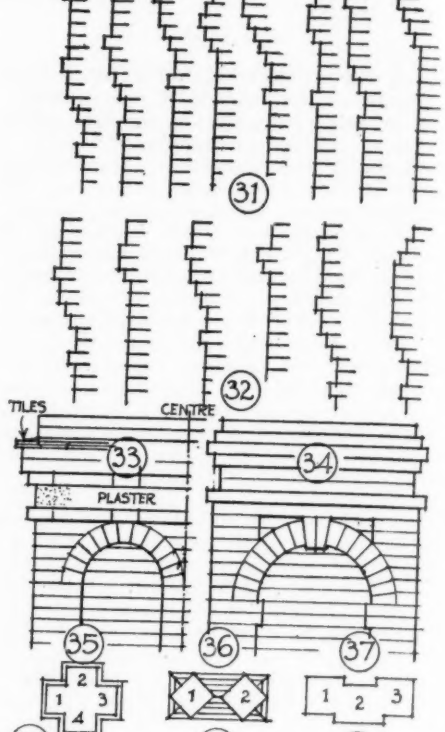
During the Romanesque period brickwork was only favoured in certain countries, of which Italy was the most important. Nowhere does it appear to greater advantage than in the square *campanili* of some of the churches in Rome, where the various stages are divided by simple dentil courses in brick. At S. Ambrogio at Milan brick is used in vaulting-ribs, arches, and other important structural features. All this Romanesque brickwork in Italy is obviously inspired by the Italo-Byzantine school of Ravenna (Fig. 11). Figs. 12 and 13 illustrate Romanesque brickwork in Italy.

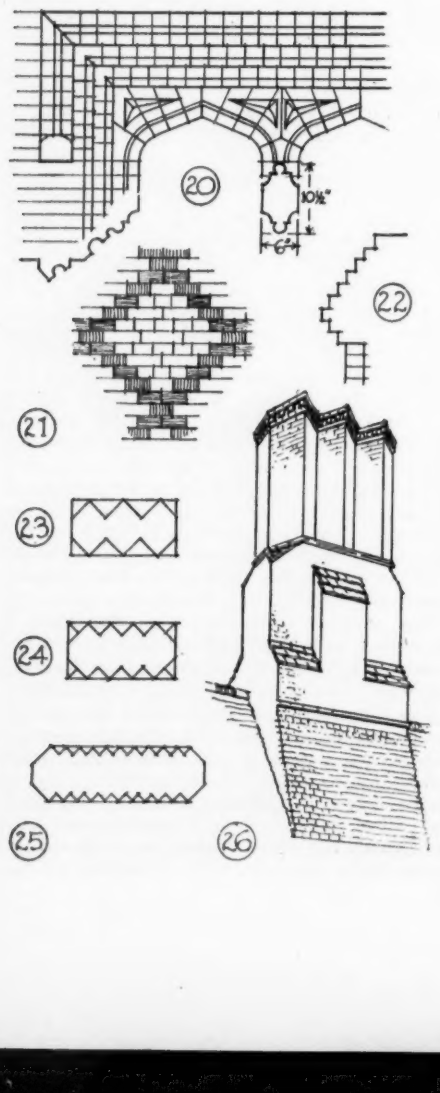
Gothic brickwork is chiefly found in North Italy, North Germany, South-West France, Belgium, Holland, and parts of Spain. In England its use was exceedingly rare up to the middle of the fifteenth century. The charming Gothic brickwork of Northern Italy was popularised by Street in his book, to such an extent, unfortunately, that caricatures of his subjects are now to be found in every town and almost in every street in England, a tribute to the frantic fervour of the Gothic revival. An equal amount of energy devoted to the study of old English brickwork would have had a better result. There does not appear to be anything very remarkable about the size, colour, or bonding of this Italian brickwork of the Middle Ages. The notable feature is the extensive use made of elaborately-moulded bricks of every kind (Fig. 19). Thus, though a simple pointed brick arch might have only a band of dark bricks laid on edge round its voussoirs (Fig. 16), there might be a whole series of mouldings and dentils in the same position (Fig. 17). Sometimes plate "tracery" was entirely formed in brickwork, the cusps included (Fig. 18); but stone or marble shafts would be used. At other times the points of the cusps were the only part of the tracery that was not executed in brickwork. Among the most important brick churches erected in Italy during the Middle Ages are the Frari at Venice and S. Petronio at Bologna. All through Northern Italy one finds interesting brick detail, such as the curious forked battlements characteristic of Verona (Fig. 14), and the strange funnel-shaped chimney stacks of the older Venetian palaces (Fig. 15).

Brick was largely used during the Renaissance, especially in Italy and the Netherlands, but in this short article there is no room to refer to even such familiar examples as the brick domes of the Cathedral of Florence or of our own St. Paul's, and our study must be confined to the development of the craft in this country from the fifteenth to the eighteenth century.

The revival of brickwork in England is almost certainly due to settlements of Flemish weavers in East Anglia from the fourteenth century onwards. In our Eastern counties, as in Flanders, there was no good building stone. The new material did not, however, make very rapid progress, perhaps because all bricks were at first imported from Flanders. But by 1450 or so brick buildings began to rise all over East Anglia. Less than a century later brick was the commonest building material, and was rapidly ousting the traditional timber and plaster construction. Certainly there is no evidence that it was avoided because it was a "modern" material; it is only in the twentieth century that such an absurd objection could be possible. And when the Fire of London came in 1666, brickwork was used for rebuilding the ruined city because it was the most fireproof, sanitary, and up-to-date material available.







East Anglian brickwork of the fifteenth and sixteenth centuries (Figs. 20 to 26 and 29) is somewhat elaborate in character, and has many features indicating its foreign origin. Stepped gables, with "corbie-steps" such as one sees in Germany and Flanders, are common, as are brick windows (Fig. 20) and elaborately-twisted chimney shafts. "Flemish bond," on the other hand, does not appear to be common in Flanders, and indeed bonding was never a very studied science in these old buildings. Inigo Jones, early in the seventeenth century, used both "English" and "Flemish" bond. The bricks used were generally thin, 2 in. to 2¼ in. being an average, and were hard-burnt and somewhat irregular both in shape and colour. Diaper-patterns in blue or black bricks on a red ground are often found (Fig. 21). The typical East Anglian chimney-stack has a series of shafts at 45 deg. with their axes (Figs. 23, 24, 25, 26). In the seventeenth century the stepped gables gave place to another type of curved outline (Figs. 27 to 30, of which 27 and 28 are from Kent and 30 from Surrey), and at the end of the century flat pediments and bold horizontal cornices drove all gables off the field.

Another school of English brickwork includes the counties of Surrey, Sussex, and Kent during the sixteenth and seventeenth centuries (Figs. 27, 28, and 30 to 40). Except in a few towns of East Kent, where Flemish influence produced the same results that we have seen in East Anglia (Figs. 27 and 28), this district displays a more rustic and restrained use of the material. Often the only brickwork found in the old cottages and manor houses is used for the chimney-stacks, the walls of the building being of half-timber construction or of stone. An enormous open fireplace 4 ft. or 5 ft. deep and 10, 12 or even 14 ft. wide, served to collect the smoke from a wood fire. (For a modern coal fire nothing could be more unsuitable.) This stack usually projected externally, and was reduced in size by means of a series of slopes and weatherings till the shaft of the chimney was reached. The flues were larger than we make them to-day, 14 in. by 9 in. being a minimum, and were constructed generally with half-brick walls. But in their planning (Figs. 35 to 40), and above all in the wonderfully simple design of their caps, formed by a succession of plain offsets without mouldings or ornament (Figs. 31 to 34), the genius of the village builder is seen at its best.

In the time of Wren, Dutch brickwork became the model for English builders. Rubbed bricks were introduced, capable of being carved or modelled. But though every old English town can furnish examples of the charming domestic work of this period, the day of the village craftsman was doomed when the pedants of the eighteenth century appeared with their "copy-books" of monumental villas from Italy, and killed tradition by their much learning.

[I have drawn all the above sketches specially for these articles, but a number of them are based on illustrations in M. Choisy's various works. Nos. 7, 8, 12, 13 are based on illustrations in Jackson's "Byzantine and Romanesque Architecture"; Nos. 14–19 on Street's "Brick and Marble in North Italy"; Nos. 20, 21 on Garner and Stratton's "Tudor Architecture"; and Nos. 22 to 40 chiefly from Messrs. Batsford's admirable series on the old cottages and farm-houses of various English districts.]

THE ELEMENTS AND THEORY OF ARCHITECTURE.–III.

BASED UPON THE FRENCH WORK OF M. GAUDET.

BY T. P. BENNETT, F.R.I.B.A. (*Head of the Department of Architecture, Surveying, and Building, Northern Polytechnic*).

THE RULES OF COMPOSITION.—We now come nearer the necessities of composition. In every programme the moment it is complex there will be two distinct parts—first, that which might be called the "useful surfaces," then the necessary communications.

The "useful surfaces" are the dining-room, drawing-room, kitchen, etc., in a domestic building; the classrooms in a school; the reception-rooms and bedrooms in an hotel; and the "necessary communications" are the halls and corridors, needed for access to these rooms but which are not otherwise occupied or employed. It is worthy of note that in almost all primitive styles of architecture the "necessary communications" are omitted, and rooms which are occupied become themselves passageways. With increasing desire for privacy, these communications—at first luxuries—become necessities. They are in the position of "overhead charges" in a business and must be dealt with in the same way. They must not be mean or niggardly, yet they must be as economical as possible. This necessary balance is the test of a satisfactory plan.

Lighting is the next essential, again a demand that is more prominent than it was in any previous epoch. In most cases windows are required, and top light is permissible only in exceptional circumstances or in special buildings, such as art galleries. Lighting, therefore, becomes a canon of design. It will, in many instances, govern the composition, and will always affect it materially. Parts of a plan top lighted when they obviously should be side lighted are at once condemned; unlighted surfaces are regarded as impossible.

The skill of the architect is portrayed by the way he manages his lighting and his ingenuity by the way he overcomes minor difficulties. In the former category is the central glazed space surrounded by galleries, which in certain buildings has replaced the lighting "area." In the second is the use of staircases to illuminate corridors, etc., in the hotel or office plan.

Management of light generally means management of ventilation, but this must in all cases be assured. Ventilation must be obtained without draught and without damage from the weather, and is in many cases a complex problem.

These considerations must be combined with another not less important, and that is the disposal of the water from the roof. A good plan is always easily roofable, while a weak plan is difficult to roof without long and circuitous gutters and costly intersections.

The disposition of the parts of a plan is the next problem. It is difficult because architectural planning is constantly a matter of compromise—a successful balancing of parts. "Judicious sacrifice" aptly expresses the process which is always necessary in the evolution of a building. There are no rules, except common sense, the intelligence of the programme, and the deepest possible knowledge of the requirements of the building. The way in which this sacrifice is made depends entirely upon the purpose of the building, and brings into play the judgment of the architect. In the great Palace of Versailles the principal place—the place of honour—has been given to the great reception hall or gallery of Louis XIV. The chapel is placed in a wing—magnificent, but sacrificed in some way to the Royal Majesty of the King. In the Escurial—the palace of Philip II of Spain—the chapel occupies the place of honour on the axis, because it was typical of the highly-religious monarch for whom it was built.

But all these things belong to the realm of utilitarianism, which is only part of the business of the architect—although an important part. The final composition must be beautiful in spite of and apart from all questions of utility. The suites of rooms must not only be good when examined for use but good to look upon. We should never have admitted the stage when we were satisfied with the acme of ugliness at the back of a house so long as it provided holes for windows and wall surfaces for water pipes. Internally, rooms, galleries, or halls must be not only convenient, well lighted, and well ventilated, but attractive and interesting. Further, they must have fine vistas from one to the other; the colour schemes must be harmonious; the treatments restful, aspiring, severe, or playful in accordance with their uses, but always beautiful. The internal vista has been one of the goals of the architect in all ages. It is found in many Pompeian dwellings (notably the House of Pansa), in the Baths of Carracalla, and innumerable other buildings. At times its pursuit has approached absurdity, if we may trust the dotted lines upon some of Latourilly's drawings of Renaissance buildings in Rome.

"Symmetry with variety should generally be sought, but it is worth while defining a term open to so much abuse. Symmetry is the regularity which ought to be seen in any single view. Symmetry is intelligent regularity. In certain plans (at least in certain student plans) a longitudinal axis and a transverse axis cut the plan into four quarters absolutely superposable; not a pilaster more or less. That is not symmetry, it is nonsense." Symmetry is highly desirable, but a building apparently perfectly symmetrical can be varied substantially where the altered parts cannot be seen from any one view point.

The opposite to the symmetrical is the picturesque. Truly picturesque schemes are generally the result of time or accident; deliberate attempts are rarely successful. Gaudet says it is inadvisable ever to seek the picturesque. Perhaps, for a Frenchman, that is sound; in England a few men have the faculty; for the others it is always dangerous.

Variety as distinct from picturesqueness is always desirable. Character and fitness for its purpose must be instilled into all our work. It was perhaps only slightly in evidence in Greece; for example, the Propylaea has much the same character as the Parthenon. Now character and fitness are essential. Tradition, which is the value of association and habitude, has its value. Generally speaking, it is the survival of all that is best in previous periods. Idiosyncracies, false fashions, and other undesirable things tend to disappear. The bulk of the old work that remains is therefore on a comparatively high level.

To summarise the qualities of good design we get:—(1) Be faithful to the programme: (2) Allow for the exigencies of site and climate; (3) Be certain that every part of the design is constructible; (4) Cultivate truthful expression; (5) Insist upon apparent solidity; (6) Obtain good but not wasteful communications; (7) Develop the judgment that governs "judicious sacrifice"; (8) Above all, remember that every part of a design must be beautiful. But the great architect of any epoch is the social state of the people from which few, if any, can break away; contemporary taste, contemporary conditions, distribution of money, contemporary opinion, these are all-powerful.

It is now necessary to refer to "proportion." This term is borrowed from mathematics, in which proportion is the quotient obtained by dividing one quantity by another. In a relative sense proportion results from the balance of the parts of a whole. In architecture it is possible similarly to say, for example, that the height of an entablature is one-quarter that of the column, or that all the parts of a building are admirably proportioned to one another. It can be said of a statue that the head is contained 7½ or 8 times in the total height, and that the statue is well proportioned, or alternatively that the arms or legs are too short or too long. So arises the expression "to be or not to be in proportion," that is to say, the object satisfies or shocks our sense of harmony. In painting and sculpture, Nature acts as a model more or less modified by general taste and contemporary opinion.

Certain theorists, for example, Vignola and Palladio, have endeavoured to impose a dogma upon Classic architecture by saying that all parts of the recognised orders should bear a definite and unalterable proportion to one another. It will be shown later that the actual proportions of the Classic orders vary considerably in every example, and that the ancients accepted no such limitations. Recently Mr. Jay Hambidge has endeavoured to show that Greek design is based on the peculiar system of geometry he has designated "dynamic symmetry." He has yet to prove that we can produce fine designs by such means.

There must be all shades of character in architecture (severity, solidity, lightness, refinement, opulence, asceticism), qualities which are expressed primarily by means of proportion. These are the qualities which, coupled with habitude (that is, tradition) and taste, really settle the relation of one part to another or to the whole.

Now we come to proportion in the wider sense—the sense of relative greatness. In every composition there appears a part which is of primary importance and acts as the pivot or focal point, other parts of medium importance, and still others of small moment. The *parti* of the design will largely depend upon this relative proportion. If the wrong *parti* be chosen some parts will of necessity be wastefully large, others inconveniently small. What designer of experience is there who has not been troubled by such a plan? In a great design this proportion is always accurately balanced.

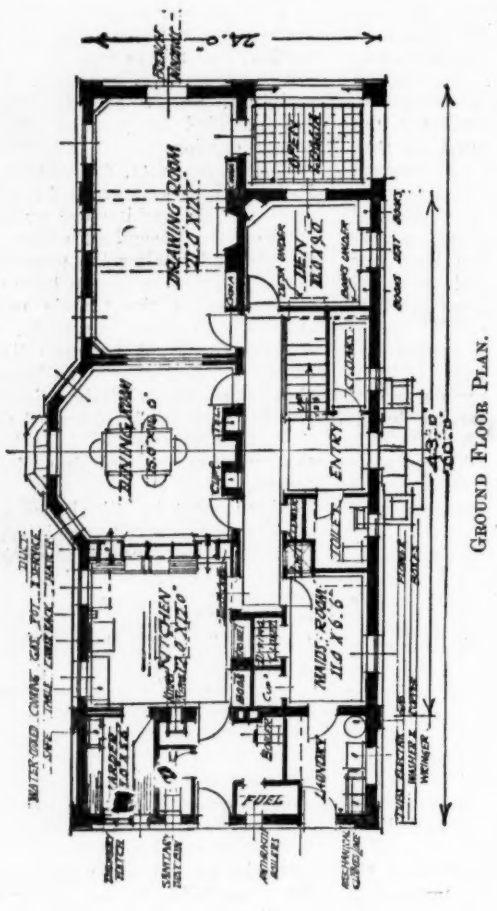
If we study "The Invalides" in Paris we find its large courtyard with long, covered ways almost ridiculously grandiose until we remember that it was the only place of exercise for the numerous *vieux soldats* who were its inmates, too infirm to go far, and in too doubtful a state of health to venture out in inclement weather. There is the large chapel—necessary for the large internal population; and Napoleon's tomb—a separate building with a separate purpose, yet closely associated with the old warriors of the hospital; staircases—at first sight unnecessarily wide and flat, but perfectly reasonable when constantly used by the infirm, the lame, and the aged. The complete building on close inspection reveals itself as a masterly study in the accurate allocation of each part to its purpose.

Or again, to take as an imaginary instance a school requiring accommodation for sleeping, feeding, class-teaching, study, and recreation; it might appear suitable for a four-story building with each unit superposed, yet closer inspection reveals the fact that feeding has requirements of service, kitchens, etc., absent from the sleeping quarters. Class-teaching, on account of its subdivision and the provision of communicating corridors, exceeds in area the feeding accommodation, and study and recreation absorb more floor area than any other section because of the still greater subdivision and relative spaciousness that is necessary.

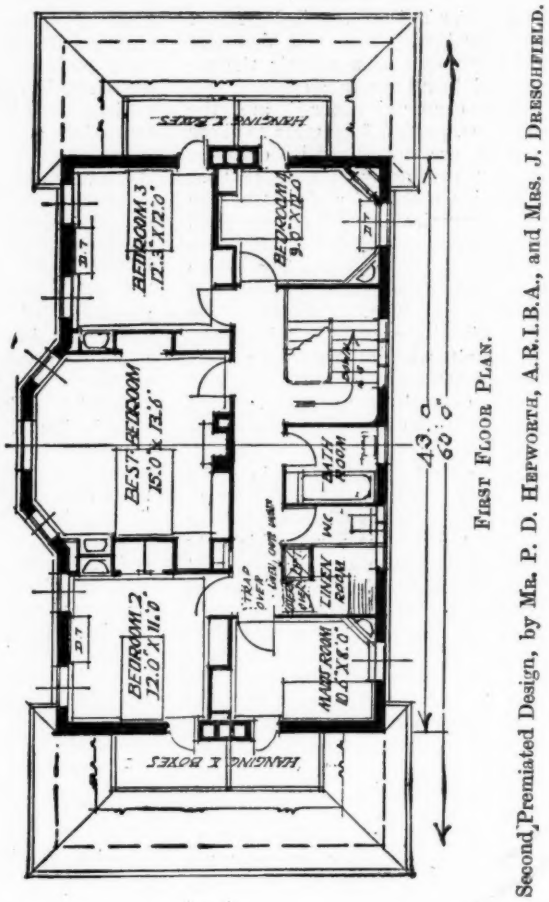
But the effect of relative proportion must be grasped in other ways. Take an object that is normally seen indoors and place it in

the open air; the result is often surprising—there is a saying that the open air "devours," which is strikingly true. Or take something generally seen in a museum, such as a large group of sculpture, and transplant it to an ordinary room; its dimensions will appear colossal. But even relative proportion must bow to the human scale, as, for instance, in the design of a large external staircase, the French *perron*. In spite of the "devouring" qualities of the open air, its risers cannot exceed 6 in. or 7 in.

Everything goes to show that the rules of proportion are essentially varied by and subject only to two governing principles: (1) The requirements of the building and (2) the effect. It is highly instructive to compare two buildings in which the composition has the same elements used in different proportions, as, for example, the exterior of the Theatre of Marcellus and the Court of the Farnese Palace. The architect must be master of proportion; he must be able to bend conditions to his will, to weave the practical requirements of his buildings into the qualities he requires, and by that means obtain character and expression.



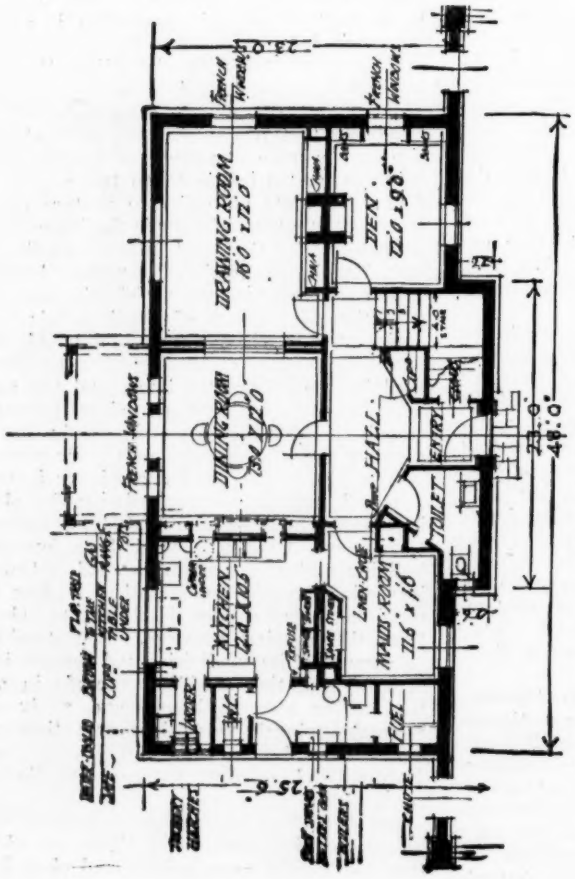
GROUND FLOOR PLAN.



FIRST FLOOR PLAN.

Second Premiated Design, by Mr. P. D. HEPWORTH, A.R.I.B.A., and Mrs. J. DRESCHFIELD.

Labour-Saving House Competition. (*See* p. 198.)



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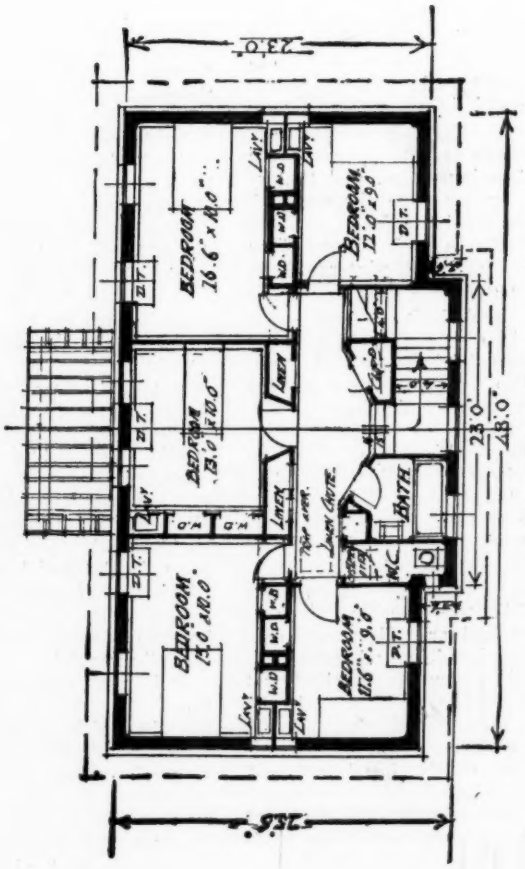

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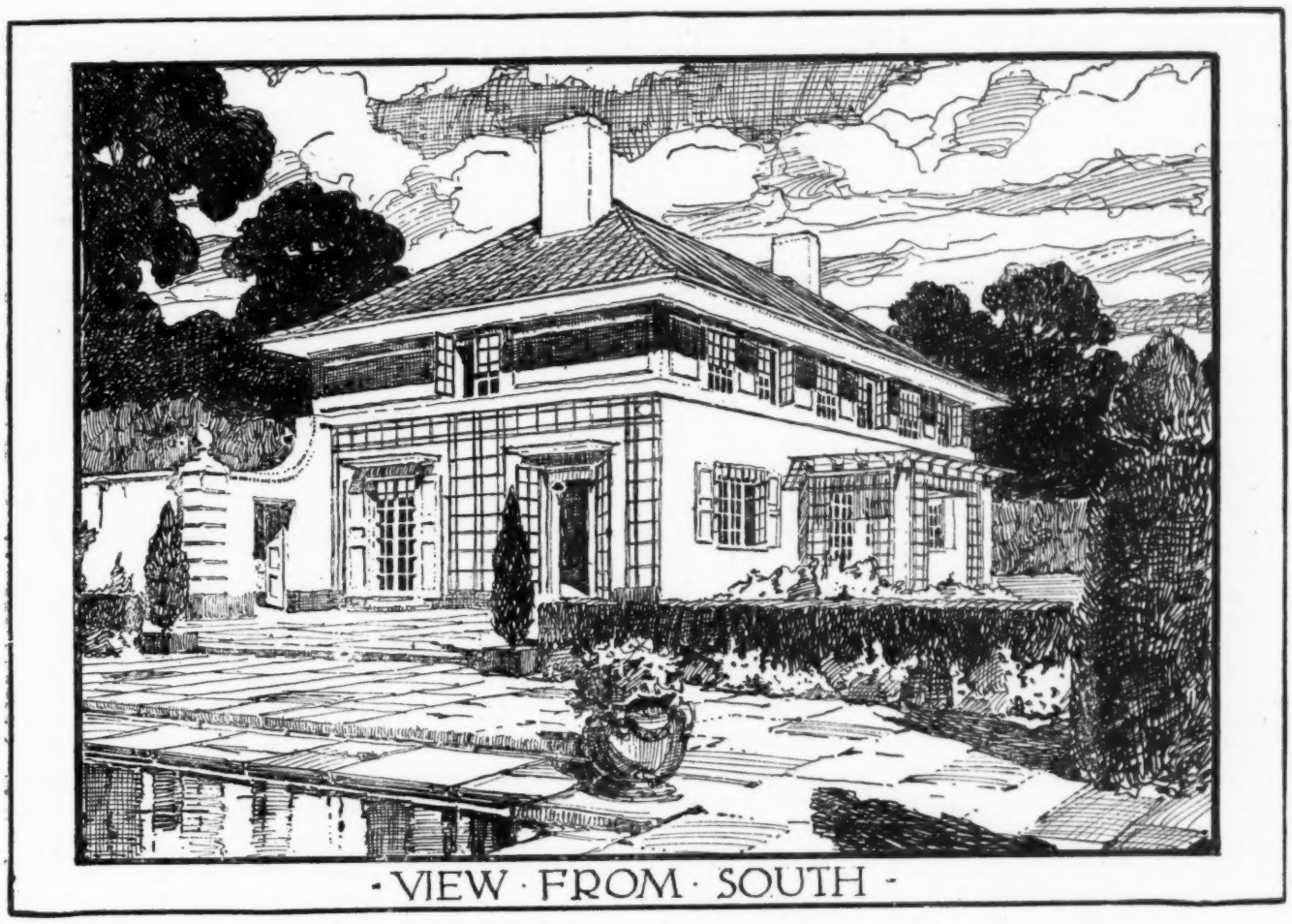


·VIEW·FROM·SOUTH·

First Premiated Design, by MR. P. D. HEPWORTH, A.R.I.B.A.

VIEW from GARDEN · looking WEST

Second Premiated Design, by MR. P. D. HEPWORTH, A.R.I.B.A., and MRS. J. DRESCIFIELD.

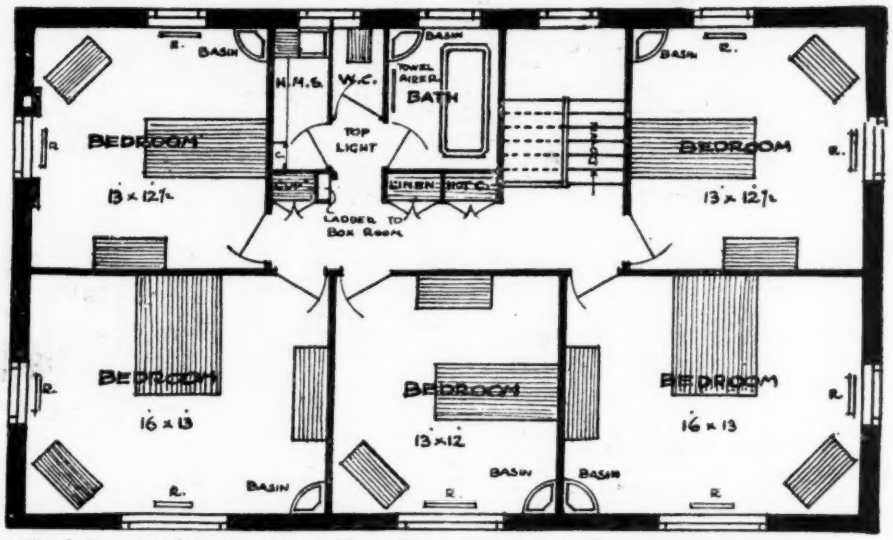
Labour-Saving House Competition. (*See p.* 198).

LABOUR-SAVING HOUSE COMPETITION.

THE full result of the competition for a labour-saving house, organised by the *Daily Mail*, is given on p. 178, and this week we illustrate the three premiated designs by Mr. P. D. Hepworth, A.R.I.B.A. (first), Mr. P. D. Hepworth and Mrs. J. Dreschfield (second), and Mr. Alfred Williams & Partners (third). The competition was for a house suitable for occupation by a professional family, fitted with labour-saving devices. The approximate cost was to be £2,500. In their report the assessors (Mr. E. Guy Dawber, F.R.I.B.A., Mr. R. W. James, M.Inst.M.E., M.Inst.C.E., and Mr. Bertram Parkes) state: "The design placed first is simple and direct in arrangement, with but little space wasted in passages, thus saving the occupants unnecessary transit from room to room. The elevations are harmonious and well balanced, and the house, when erected on a suitable site, should look well. The details of the various fitments, cupboards, and the like show careful thought and are admirably worked out. The design placed second is almost equally good, but at a materially increased cost, and the designer has given evidence of a sound grasp of the problem to be solved, as shown in the details of the various fittings suggested. Design No. 3, while containing many good points, fails in certain essentials in the plans, and the details shown do not indicate so much ingenuity and thought as in the plans placed first and second."

The assessors state the competition has been beneficial in showing that architects are realising the importance of utilising to the full the arrangements and devices recently put on the market for simplifying the working of and for saving labour in a house, yet, as a whole, the schemes submitted show but little advance in the general planning and arrangement of the various rooms beyond what has been done in recent years. The assessors are of opinion that none of the designs submitted, with the detailed arrangements of sanitation, electric and gas cooking and central heating, lifts, cupboards, fitments, and other things specified, could be erected and left in working order for the sum allowed, and this opinion is borne out by the actual particulars submitted by the competitors in their plans.

Under all the circumstances, the assessors considered it their duty to place the designs in the order given, notwithstanding the fact that the cost of building would be above that stated in the conditions. The cost of building any of the houses in the premiated designs is estimated at not less than £3,000.



Third Premiated Design (First Floor Plan), by MR. ALFRED WILLIAMS & PARTNERS.

In his description of the first premiated design, Mr. Hepworth stated that in order to provide a small house of the required accommodation which could be run by one person, all waste space and passages were eliminated so far as possible. Several labour-saving devices, such as flush-veneered doors, have been ruled out on the ground of cost. The cost is estimated by Mr. Hepworth at within measurable distance of £2,500. In this house all angles to walls and ceilings are rounded; all door handles and other fittings are either vitreous enamel or oxidised iron. Radiators are provided in all the bedrooms, servant's room, and kitchen; the drawing-room and dining-room fireplaces are fitted with plugs for electric fires. There are also plugs in the hall and landing for a vacuum cleaner and polisher. There are no bright surfaces at all in the house.

With regard to the second premiated design, Mr. Hepworth and Mrs. Dreschfield state that this is a medium-sized house that can be efficiently run by one person, which obtains its results from compact planning and careful consideration of rooms with regard to the order of necessary housework. Many labour-saving devices not barred by excessive cost have been incorporated. All angles to floors, walls, and ceilings are rounded, and where formerly bright metal would have been employed there are porcelain, vitreous enamel, or oxidised iron substitutes. There is no coal in the house; an anthracite boiler heats all radiators, drying closets, and towel-rails. The three reception-rooms and one bedroom have fireplaces with power plugs

Third Premiated Design, by MR. ALFRED WILLIAMS & PARTNERS.

Labour-Saving House Competition.

for electric fires. The competitors express the opinion that this house could be built for £2,530.

Messrs. Alfred Williams & Partners, the authors of the third premiated design, state that it is designed to be worked with one resident servant, it being presumed that members of the family would undertake light duties, the services of a charwoman also being engaged for occasional help. Open fires have been entirely omitted. Radiators warm the rooms on the low-pressure hot-water system, with gas fires in addition in the hall, drawing-room, and study. The kitchen and larder have been so arranged as to call for the minimum of walking when meals have to be made ready or served. The omission of all fireplaces, chimney-stacks and flues, mantelpieces, stoves and tiles, should, it is stated, contribute largely, if not wholly, towards the cost of central heating in such a house.

We have received the following comments on this competition from Mr. Reginald C. Fry, the winner of the "Ideal Home" Competition in 1911 :—

The object of this competition being an endeavour to obtain a labour-saving house which shall be as far as possible "ideal," it is difficult to see why such fundamental errors as enumerated below are tolerated. The house as it stands may or may not be labour-saving, but from a planning point of view it is open to the following criticisms :—

First Premiated Design.

GROUND FLOOR.—The w.c. and larder are next to each other, which is unpardonably bad.

The compass points are not indicated, but it is to be assumed that the principal rooms face south. The kitchen therefore also faces south. Comment upon this is surely unnecessary.

The larder has two walls, one to the east and the other to the south. My previous comment applies.

There are no vestibule doors to main entrance.

The lavatory is entered direct off the main hall, when its entrance could have been easily veiled by a vestibule.

The cupboard in the angle of the stairs, if other than a dwarf cupboard, would make the hall dark, as it is obvious that the door of this cupboard is intended to balance the door of the lavatory.

The dining and drawing-rooms are somewhat small for this class of house, and the large number of doors and windows would without doubt subject the occupants to draughts.

The fireplace in the den is made uncomfortable by its proximity to the door on the one side.

The refuse-bin appears to be too close to the heating apparatus, and might become very obnoxious.

FIRST FLOOR.—Wash-basins are set so close in the recess as to be uncomfortable to the elbows.

Only three bedrooms face south.

Windows lighting the wash-basins tend to make rooms draughty without materially assisting the lighting of the rooms.

Wardrobes curtail the sizes of the rooms down to 9 ft. and 10 ft. wide. In short, there is not a bedroom in my opinion which is of a size suitable to a house of this class.

The elevation strikes quite a high note in design, and upon this the winner is to be congratulated, but it would seem that in some measure he has subordinated his plan to this.

Second Premiated Design.

The second premiated design in many respects is far better, but the larder and w.c. are next to each other.

The loggia opens to the north as well as to the west; the former aspect is hardly suitable to this climate.

The entry to the ground floor w.c. is improved, as are the lavatory basins in the bedrooms, which afford plenty of elbow room.

Only two of the beds would be subjected to draughts at the head.

THE COLLAPSE OF THE KNICKERBOCKER CINEMA.

THE disaster to the Knickerbocker Cinema, Washington, involving the loss of over 100 lives and injury to more than 200 members of the audience, raises the question of the safety of great modern places of assembly on both sides of the Atlantic. Recently erected in the capital city of America and certified as having passed all the tests required by the Municipality, the building, containing some 2,000 seats, must be supposed to have been designed and built in a substantial fashion, yet, under the weight of a heavy fall of snow, the roof seems to have parted company with its supports at the wall tops and to have descended bodily upon the auditorium, bringing with it, in its fall, the balcony of reinforced concrete.

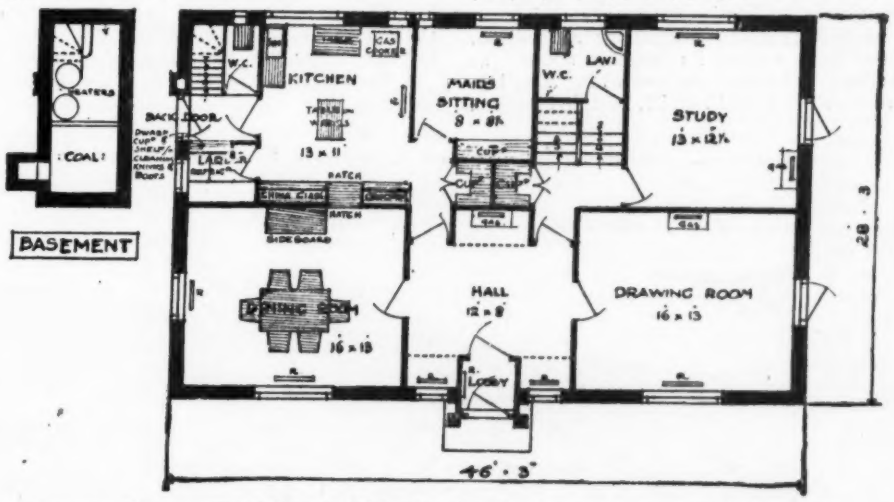
In spite of some ambiguity in the accounts it is clear that great masses of roofing material, covered with snow, fell without warning to the floor of the theatre. The balcony seems to have fallen intact or to have overbalanced and slid in the direction of the orchestra, leaving a small triangular space toward the rear sufficient to protect a few members of the audience. Falling *debris* blocked the exits and confined the wounded within the ruins.

Certain parts of the wall of the theatre are said to have also collapsed inwards, and their ruined and threatening condition rendered the work of the rescue party hazardous, since portions of the building material continued to fall during the night. The work of rescue involved the cutting away of steel girders by the use of the oxy-acetylene torch, and it is quite possible that this necessary work will destroy any internal evidence which might have been presented by the condition of the ruins themselves as to the cause of the disaster. The roof is described as being of "cement" supported upon "a lattice of steel," and the completeness of the collapse may point to failure by shearing at the wall ends of the lattice girders or to the snapping of the tensile flange in the centre of the span. This type of steelwork, unless designed with a very large factor of safety, is far less reliable under variable loads than suitable construction with solid web, since it offers opportunity for excessive strain to apply to connections at the ends of the lattice bars. The use of a steel framework with a light facing of other material nominally impervious to fire is the accepted standard of American construction; and granted ample strength in the steel constructional members and their connection one with another, there is nothing radically wrong with the theory underlying this practice. It has a defect, however, in that the strength of the facing material does not contribute to the general strength of the structure, as it is designed usually to be only of sufficient strength to carry itself and a reasonably calculated load from one main steel support to the next. Had the lattice girders been faced up in a sufficient quantity of reinforced concrete the roof would have been more adequately connected with the walls and materially strengthened in consequence. The principle of homogeneity of structure, which has preserved many an ill-cared-for Byzantine building in the East through centuries of neglect might well be revived at the present time, for it is obviously good economy that each part of a building should structurally assist every other adjoining part.

In America, economy in first cost is made a primary essential and the calculation of a possible return on money invested is an important branch of the architect's professional practice. The desire to reduce expenditure may sometimes lead to designs for structures being submitted to keen scrutiny with a view to the reduction of excessive material to the minimum prescribed by the building by-laws and to be content with structures that will pass the building inspector. It is some comfort to an Englishman to reflect that a sounder, if less progressive, policy holds good in respect of buildings in this country, for not only are building by-laws vigorously enforced but an old tradition in favour of permanence in building guides each new designer almost in spite of himself. An essential difference of temperament manifests itself in the attitude of the English and the American architect towards Governmental control of building design and construction, and although a certain amount of minor irritation is sometimes produced by what is known as grandmotherly legislation the Englishman is more apt to be sympathetic towards the intent of the by-laws and to recognise the value of a safe standard. Knowing, at the outset, that no deviation from principle can be expected from the representatives of the law, an architect in England can invariably obtain a hearing for his proposals, together with a frank and generally helpful discussion of the points at issue and clear instructions as to the requirements and their bearing upon his design. While the building-owner may murmur against the tyranny of "Jacks-in-office," the architect appreciates the kindly compulsion which helps him to evolve a building of respectable and enduring solidity.

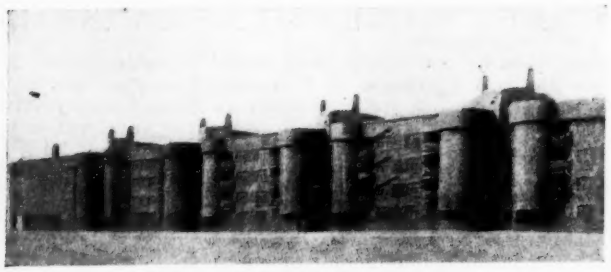
American architects are much more inclined to take an attitude antagonistic to compulsion of any kind, and disasters in the United States are frequently found to be due to conscious disregard either of by-laws or of those precautions which might be dictated by common sense.

A fall of snow two feet in thickness would add from 12 to 24 pounds extra weight to every square foot of the roof surface, and it seems incomprehensible that the management of the theatre should have allowed this weight to remain and accumulate during the evening after having discussed the propriety of removing it earlier in the afternoon. The snowfall with its added weight hardly seems sufficient excuse for the collapse of a really well-designed roof, and further evidence as to wind pressure and structural detail will be eagerly looked for by those interested in building construction.



GROUND FLOOR. Third Premiated Design, by MR. ALFRED WILLIAMS & PARTNERS.

Labour-Saving House Competition, (*See p.* 198.)



Middle-Class Houses (or Flats) at Amsterdam. MR. J. F. STAAL, Architect, (*See* p. 186.)

HOUSING AND TOWN-PLANNING NOTES.

The Cost of House Building.

It was reported to the Golcar District Council last week that sanction had been received to erect sixteen additional houses at Leymoor, and that the accepted tenders worked out at about £450 per house. Similar houses erected by the Council at Crimble cost over £1,000 each.

Town-Planning.

The fourth of a series of six lectures on "Town-Planning" was given by Professor S. D. Adshead, M.A., F.R.I.B.A., at the College of Estate Management on January 26. The lecturer showed how planning in this country arose out of the need for housing for the industrial classes when they first began to work in mills; how the buildings were often beautiful but generally insanitary, and how as sanitation improved architecture declined. He next cited villages built by aristocrats, employers, and syndicates such as Edensor, Saltaire, Port Sunlight, Bourneville, Letchworth, and Hampstead Garden Suburb, as well as schemes planned by himself at Dormanstown and on the Prince of Wales' estate at Kennington. The lecturer then proceeded to the sociological aspects of town-planning, such as the division of the classes. He was of the opinion that much division was necessary, but that often persons of the same class but of different occupations mingled less easily than persons of different classes in the same occupation. There were streets in London, he said, occupied almost solely by policemen, and others by tramwaymen. In conclusion he dealt with the need for open spaces of all kinds, including playgrounds for children, allotments, and a Nature reservoir in which man could obey his primitive instincts and indulge in elemental pursuits. As it was man's nature to break away from artificialities such reservations should be free from artificialities such as hedges, fences or views of habitation. The lecture was illustrated by lantern slides.

Land for Housing.

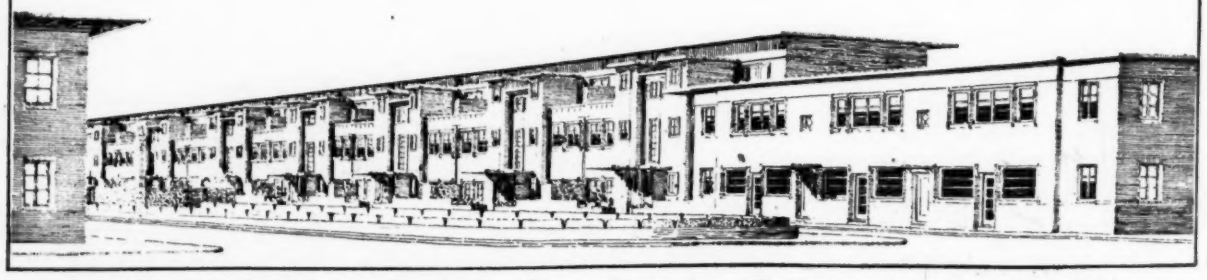
DAGENHAM.—Mr. Howard Martin, Official Arbitrator, sitting at 5, Old Palace-yard, Westminster, recently heard a claim by Mrs. V. W. East against the London County Council, concerning the Council's compulsory acquisition, for the purposes of its housing scheme at Dagenham, of 19 cottages, comprising Nos. 1 to 17, Victoria-place, and 1 and 2, Temple-cottages, Bennett's Castle-lane, with an area of land of 2 acres 1 rood 16 poles. Mr. Francis A. Dod, surveyor, on behalf of the claimant, submitted a valuation of £8,525, while Mr. Frank Hunt, Valuer to the County Council, valued the property at £2,932. The Official Arbitrator has since issued his award as follows: "That the acquiring authority is to pay the claimant the sum of £4,024, and the acquiring authority to pay the hearing fee, and each party to pay its own costs."

SOUTHAMPTON.—Mr. Howard Martin, sitting at the Municipal Offices, Southampton, recently heard a claim by the Ford Motor Co. (England), Ltd., against the Southampton Corporation, concerning the Corporation's compulsory acquisition of just over 21 acres of marsh land at Millbrook. The Corporation has erected some buildings on the land for the purpose of an isolation hospital.

Mr. S. H. Emanuel, K.C., for the claimants, said the land was purchased by the Ford Company with the intention of erecting factories at a cost of £350,000. It was intended to have a pier or jetty going out to deep water, whereby they would have been two miles by water from the docks. The war prevented this being done, and before they could do anything the Corporation stepped in. The claim amounted to £12,804, and included compensation for the money actually paid to a surveyor for making out plans and advising the Ford Company, and negotiating with the railway company for sidings to be laid down by the company. The company did not oppose acquisition of the land because the manager in England was being changed, and there was an interregnum, and during that time it went through. It was serious for the company, and also for Southampton, as a large factory of that description would not have been injurious to the town. Mr. Barnes, Secretary of the Ford Company, said that the first knowledge he had that the Company were not building was when notice to treat was served by the Corporation. Mr. Arthur Arnold, surveyor, of Winchester, and Mr. Watney, surveyor, of London, giving evidence for the claimants, valued the site at £500 an acre, and expressed the view that it was suitable for a factory. On behalf of the Corporation, evidence was given by Mr. W. B. Hill and Mr. A. E. Green, surveyors, that the site was not suitable for a factory. The Official Arbitrator, who reserved his decision, has since issued his award as follows: "That the acquiring authority is to pay the claimants the sum of £5,500, the acquiring authority to pay the hearing fee, and each party to pay its own costs."

ESTATE AGENTS AND REGISTRATION.

SPEAKING at the annual meeting of the North and North-Western (London) Branch of the Auctioneers' and Estate Agents' Institute, Mr. E. H. Blake (Secretary of the Institute) said the Council was moving in the direction of the registration of the profession. The Institute had no control except over its own members, and it was desirable to establish machinery by which the irregular practitioner might be brought to book. To close the profession by registration it was necessary to go to Parliament, and if they were to do any real good in the matter it had to be backed up by the other professions concerned with real estate. Therefore, a Bill was being promoted jointly by the Auctioneers' Institute, the Surveyors' Institution, and the Land Agents' Society. Hand in hand they were going to Parliament to ask for the protection which they claimed the public was entitled to, because it was the public that was going to benefit. The public at present went to a man who called himself an auctioneer without any investigation of his qualifications. When the profession was closed by registration the public would have a guarantee that if they went to a member of the profession who was on the register they were dealing with a man who was responsible to somebody in the first instance, and was answerable for his conduct, and who had to be qualified to undertake such business. It would be necessary to set up a Registration Board, which would probably consist of representatives of the Auctioneers' Institute, the Surveyors' Institution, and the Land Agents' Society, and probably, if found desirable, an official element as well, because in connection with their work they came in touch with various Government departments. So far as he could see at present, members of the three professional institutions concerned would be entitled to be registered, but he did not think Parliament would allow them to take away the living of a man who did not happen to be a member of any of those institutions if he was actually in practice at the time. It was thought that a man on the register should be called an estate agent, but the idea was rather to register the duties than the individual, and provide in the suggested Act of Parliament that no man should be able to practise in certain directions unless he were registered. There was wholehearted co-operation in the matter between the three professional organisations.



Working-Class Buildings at Groningen. MR. J. P. EN VAN HARDEVELD, Architect. (*See p.* 186.)

THE BUILDING TRADE.

THE OUTLOOK IN THE BUILDING INDUSTRY.

MR. F. HIGGS, of Messrs. F. & H. F. Higgs, Ltd., of Herne Hill, S.E., has sent us the following communication on the subject of the outlook in the building industry :—

"Every builder down south (and probably the north will say the same) will tell you that trade is getting bad. Contracts are winding up, and there is little or nothing coming along. Staffs have to be reduced and many of the operatives discharged. The reason is not far to seek; first, high building cost stops people from new works unless they are obliged to proceed with them; second, the state of general trade in the country is so bad that no new enterprises can be thought of.

"These conditions call for a disposition all round to face facts and the will to apply the appropriate remedies; first, on the part of employers in all trades, the cutting down of profits to the irreducible minimum, second, on the part of workmen, to do their utmost to produce as much output as they can for the remuneration they receive, so as to enable the employer to quote a lower price for the finished article. These remedies will apply to every trade throughout the length and breadth of the land, and if universally adopted would soon bring about a return to normality and soundness. Expensive labour is not alone the cause of high cost in our own trade. Materials in many cases, notably in that of cement and bricks, have not come down to anything like the rate they should have done, but I agree with you that with the arrestment of demand now going forward all round the desired result will quickly follow. To break up rings or bring down prices, the certain course of action is to stop buying.

"As to prospects for 1922. I am a born and convinced optimist, and I believe that before the year is out, in London at any rate, we shall see prices lowered sufficiently to set going the rebuilding overdue on many estates, and the large quantity of work which some, at any rate, of my architect friends have in their offices but which is hung up for reasons of cost and finance. London, and perhaps other large cities, however, is doubtless uniquely situated as regards rebuilding, and no general improvement can be anticipated until the trade of the whole country advances. Whatever hopes are centred on trade with the Dominions and Dependencies of the Empire we shall not get home until foreign markets are going again; notably Russia and the rest of the Continent, which, like ourselves, are crippled and exhausted by five years of cruel and barbaric warfare, a condition of things which cannot be remedied in any other way than by years of hard, honest, and persistent effort on the part of the nations concerned. This will gradually come about sooner or later, and the sooner in proportion as the Governments of the nations let trade alone to flow into its natural channels, govern with probity and strict economy, and refrain from squandering their peoples' wealth on useless armaments and other non-remunerative operations.

"It is not easy to believe that this consummation will soon be obtained, but I believe it is coming, and, to far-seeing people, may be actually in sight. Meantime, let each one in his own sphere practise the two remedies stated in the early part of this letter."

Proposed New Hotel at Goldthorpe.

Plans have been approved for the erection of a new hotel at Goldthorpe, near Rotherham, for Messrs. John Smith's Brewery Co., Ltd., The Brewery, Tadcaster. The architect is a member of the firm's staff.

MODERN METHODS OF BRICK MAKING.

IN the course of a lecture at the Royal Scottish Society of Arts, Edinburgh, on January 30, on "Modern Methods of Brick Manufacture," Principal A. P. Laurie (Heriot-Watt College, Edinburgh) said one of the most important industrial and social problems of the time was to devise cheaper and more efficient methods of building, so as to meet on the one hand the extra cost of building caused by the increase in the price of labour, which not only affected the actual building operations but also all the materials used by the builder, and on the other hand the demand of the working classes for better accommodation. Similar problems in other industries had been successfully met by the application of mechanical principles and new scientific discoveries to practical problems. As an instance might be taken the revolution caused by the invention of the steam engine and mechanical methods of spinning and weaving, which supplied the world with cheaper clothing, and also the invention of methods for cheaper transport through railways and steamships.

There was no industry which had made so little progress in the matter of invention as the building trade. With the exception of the adoption of steel and reinforced concrete, which the builder owed to the engineer, and of machinery for the making of the wooden fittings and for the making of bricks, which the building trade owed to the mechanical inventor, there had been little progress made in methods of building within the past two thousand years. That was probably due to the fact of the cheapness of labour in the building trades in the past, and he, therefore, regarded the present increased price of labour, apart from its having improved the social condition of a large class of workers, as having an additional benefit in compelling and stimulating invention in order to get the increased wage out of increased efficiency of production. Probably much more would have been done in this direction if it had not been for the well-meant schemes for subsidising building due to the Government, which had resulted in a general slackness all round as to costs. The solution, therefore, of that problem had been delayed, but had still to be faced, and they would probably see that when the Government building schemes came to a conclusion there would be a great stimulus to invention. He knew, for instance, that at least one machine had been invented which was able to lay all the bricks mechanically for building an ordinary house at the rate of some 2,000 bricks an hour, and which would probably be at work at the present day if building were on a competitive basis.

He then proceeded to describe the modern methods in use in making the clay brick, such as the stiff plastic, semi-plastic, and semi-dry process, and the modern type of kiln based on the Hoffman kiln which was used for burning the bricks. The problem before the modern brickmaker was due to the rise in the price of labour, which made it necessary to use as far as possible economical methods of manufacture, and the rise in the price of coal, which was simply labour again, and which made it no longer economical, except for bricks of special beauty and quality to be used as facing bricks, to burn bricks from clay with coal. It, therefore, was no longer economical to make clay bricks unless the brick itself contained most of the fuel required for its burning. Examples of these were the London stock brick, which was mixed with cinders; the Fletton brick, made from a clay which contained petroleum; and the bricks from the shale heaps at the coal mines, which contained a certain percentage of coal. The result had been a stimulus of the manufacture for the first time in this country of the type of brick known as the sand-lime brick, which was invented by William Michaelus in 1880.

The principle of the sand-lime brick was to take a form of silica, or compound containing silica, such as sand, clinker, refuse from destructors, granulated blast-furnace slag, slate dust, or, to take the latest example, the burnt shale resulting from the distillation of oil shale in the Edinburgh district, mix it with a certain amount of slaked lime (about 8 per cent.), subject it to a pressure of about 200 tons on the surface of the brick, and mature by placing in a steam oven or high-pressure steam chamber for some six hours, so as to get a combination between the lime and the silica. Such bricks had been made for a long time in very large quantities on the Continent, in Belgium, France, and Germany, and also in America and proved when properly made to be thoroughly reliable both for crushing strength and for standing weather. In Germany alone before the war some 1,500,000,000 of such bricks were being turned out every year. In this country these bricks were not largely made by this process before the war on account of the wide distribution of brick earth and the cheapness of coal, but such methods of manufacture were now being rapidly adopted and plants were being erected in various parts of the country to deal with different materials, such as granulated blast-furnace slag. They would probably be most interested in Edinburgh in the establishment of brickworks to manufacture bricks by that process from the waste shale heaps. They had there practically an inexhaustible supply of waste material. In the shale heaps at Philpstoun alone, where the works had been established, there was sufficient raw material for the manufacture of 1,500,000,000 bricks, and the tests of these bricks made by Professor T. Hudson Beare had shown a crushing load of .96 tons per sq. in. and a cracking load of .71 tons per sq. in., as against a crushing load of an ordinary clay brick of .754 tons and a cracking load of .36 tons per sq. in., so that both in crushing and in cracking tests these bricks proved superior to the ordinary clay brick of good quality. They had the further advantage of being perfectly shaped, thus making building much simpler and more rapid, diminishing the amount of mortar or cement required, and enabling partition walls to be built which were so smooth on the face that the cost of plastering was considerably diminished. In the case of that material high-pressure steam was not required, as in the case of sand. In order to bring about the combination of the lime it was sufficient to expose it to open steam. The shale was passed through crushers, mixed automatically with the right percentage of lime and water, and passed on to the brick-pressing machine, and the only handling required was to lift the bricks from the machines as they were finished and pile them on little wagons, which were then drawn off into the steam chamber. After steaming, the bricks were better if matured for a few weeks before being actually used.

The geographical position of the shale heaps in West Lothian was almost perfect as a centre of distribution for the industrial regions in Scotland; as the cost of transport became more reasonable it should be possible to supply not only the industrial area of Scotland but also the north-east of England with bricks. Looking into the future, it was very improbable that stone would be used again as a building material for ordinary domestic purposes except in very special localities, and the builder was, therefore, left with bricks, cement, with such cheap aggregate as he could get locally to mix with his cement, and plaster-of-Paris, which, if manufactured by modern methods, should form a competitive material to Portland cement for internal construction. The enormous deposits of gypsum at Spitzbergen might ultimately lead

AT END OF FIRST DAY (EIGHT HOURS' WORK).

AT END OF SECOND DAY (SIXTEEN HOURS' WORK).

Rapid House Building at Hereford.

to plaster-of-paris being put on the market at a very cheap rate for constructional purposes.

The lecturer, in conclusion, dealt briefly with the problem of how to build with the greatest economy in material a sufficiently strong wall based on sound engineering principles for cottage construction, and said he had no doubt that they were just at the beginning of an era of invention in connection with building by which the most conservative of all our trades would probably be transformed.

THE FORTY-FOUR HOUR WEEK.

IT is reported that at a national conference of executives of trade unions affiliated with the National Federation of Building Trade Operatives, held on Friday last week, a manifesto was issued to all members of affiliated unions strongly urging resistance to any proposal for extending the hours of labour. It is stated that a ballot of the members of the union has resulted in a large majority in favour of opposing any alteration of the present working week. The manifesto states:—

"The employers in all industries are threatening to extend the hours of labour. The reduction of the hours of toil is the most valuable gain organised industry has been able to obtain. In our industry the employers have always stated that the forty-four hours was uneconomic, and they now desire to alter the hours to fifty per week in the summer and 41½ hours in the winter. . . . The executive of the Operatives' Federation know the members of our affiliated societies have without doubt expressed their opinion on this important question, and hundreds of resolutions have been received at the head office instructing the Federation and the affiliated societies to fight if necessary for the retention of the forty-four hours. Your executive are fully alive to the importance of resisting the pernicious claim of the employers, and will use their full power to maintain this great reform in our men's lives. The Employers' Association may post notices in many towns—large or small—informing our members that the works will be open before and after the ordinary starting and finishing time with a view of enticing our members to break away. Should such a method be pursued, it is the members' duty to the industry to go to work at eight a.m. and knock off at five p.m., for remember, men, we do the work, and therefore have the right to fix the hours we shall toil. Members will no doubt be told that by working extra hours the loss in wages can be made up. Fellow worker, pay no heed to such appeals. This will happen only for a short time, for eventually the wages of the fifty-hour week will be no more than the wages for forty-four hours. Longer hours mean lower wages. . . . You must report through your branch secretary and Federation secretary any notice that may be posted up by the employers, and the secretaries will in turn report to the general office of the National Federation."

RAPID HOUSE BUILDING

THE illustrations on this page show the daily progress on a block of two type "A" houses on the Hereford housing scheme, where a total of 230 houses are being erected under the direction of Mr. W. McNeil Shimmin, A.M.Inst.C.E. As is seen in the fourth illustration the shells were built completely in a total of thirty-two working hours. The size of the gang of men engaged was not a large one, but the result of its thirty-two hours' work is certainly a credit to British labour and to the co-operation and good will existing between the contractors and workers.

The contractors are Messrs. John Laing & Son, Ltd., of Carlisle, London and Liverpool, who also recently completed two seven-room houses in South Wales in 13½ working days.

BOOKS.

Spon's Architects' and Builders' Pocket Price Book for 1922. Edited by CLYDE YOUNG, F.R.I.B.A. Forty-eighth edition. London: E. & F. N. Spon, Ltd. Price 5s. net.

Only those concerned in estimating for builders' work can appreci te the difficult / of fixing even an approximate standard of prices. Having carefully examined this work in detail we can testify to the fact that the Editor has done his work of revision most thoroughly, and that he is justly entitled to say, as he does in the preface, that "the whole of the prices throughout the book have been revised." This revision does not consist in an all-round percentage reduction; in some few cases, where the circumstances warranted such a course, the prices have been increased. It is a pleasing commentary on the altered conditions of labour that the Editor is enabled to quote his "constants" without a note as to reduced output making it necessary to add 20 to 25 per cent., which he found from experience was the case in last year's edition.

Without wishing to be hypercritical, we would ask whether the general reduction in cost did not require a revision of the chapter on approximate cost of buildings, pp. 3–7. This is quite a useful chapter, but might be made more so with a little time spent on it in bringing it into general accord with the detailed prices in the body of the book.

BOOKS RECEIVED.

THE PERIODS IN INTERIOR DECORATION. By Herbert Jeans. (London: The Trade Papers Publishing Co., Ltd.) Price 5s.

COMMON COMMODITIES AND INDUSTRIES—WALL PAPER. By George Whiteley Ward. (London: Sir Isaac Pitman & Sons, Ltd.) Price 3s. net.

AT END OF THIRD DAY (TWENTY-FOUR HOURS' WORK).

AT END OF FOURTH DAY (THIRTY-TWO HOURS' WORK).

Rapid House Building at Hereford.

THE CONCRETE INSTITUTE.

AT a meeting of the Concrete Institute, held on January 26, MR. E. B. MOULLIN, M.A., read a paper entitled "Capillary Canals in Concrete and the Percolation of Water Through Them," in which he described experiments on the subject he had made three years ago.

Experiments made at the National Physical Laboratory in 1911 showed, he said, the rather surprising fact that water did not pour through concrete at a constant rate. When the slab was first subjected to pressure the water passed through fairly freely, but in the course of some thousand hours or so the rate of flow diminished to about one-thirtieth part of the initial value. An explanation of that time reduction of percolation was that the slabs became silted up with calcium carbonate, either present initially in the water or eroded from the interior of the slab by the passage of the water. However, the same slabs were after a rest again subjected to a reduced water pressure, and again showed the same phenomenon of diminishing rate of flow. If silting up were the explanation, then, presumably, water should always pass at a constant rate through a slab that had once been silted up by previous exposure to water, but experiment showed that that was not the case.

In percolation and absorption experiments made by the author, the quantity of water absorbed was measured by the movement of the water meniscus in the horizontal portion of the capillary tube; the readings were carefully corrected for temperature changes by means of a correction curve for the apparatus obtained experimentally. The test blocks were cylinders about 6 cms. diameter and 6 cms. high. Absorption curves for a plaster-of-paris block and for a specimen composed of cement and very fine gravel showed a decreasing rate of absorption similar to the decreasing rate of percolation found in the National Physical Laboratory tests. An absorption curve for a cement block when the test was repeated 13 days later showed that it had not become silted up in the first soaking.

Microscope slides were made consisting of thin sections of cement and plaster, thin enough to transmit light through them. Examination of cement in this manner clearly showed the remains of partly dissolved cement grains; in some cases the original internal crystalline structure of these grains was visible. The intervening spaces between the grains was filled with a dense amorphous substance, which was presumably the result of the desiccation of the colloidal solution formed by the mixture of cement and water. Piercing through this amorphous substance was a large number of circular holes, which must be cross sections of spherical cavities in the block. In one slide there were 55 of these holes in an area of about two square cms. of cement. The diameter of the holes varied from seven-tenths of a millimetre to a little under one-tenth of a millimetre, but as the holes were not necessarily diametrical planes of the spherical cavities their diameter did not show the average size of the spherical hole. Probably 7 mm. might be taken as an upper limit. If a block of cement concrete were cut through and its surface ground dead flat, those cavities were easily seen, some being greater and some less than a hemisphere. The insides of the cavities could be observed with the help of a powerful microscope, and viewed in that manner they presented a remarkably beautiful appearance. The walls were completely covered with tiny crystals of varying hues of green, blue and grey, and in the absence of anything to give true scale to the picture they might be mistaken for a gem-studded grotto. The depth of the cavities could be measured by noting the movement necessary to focus first on the top and then on the bottom of the holes. In the case of eight holes thus measured the radii of the spheres lay between one-tenth and five-tenths of a millimetre, giving volumes of 4.2 by 10^6 in. cub. cms. and 525 by 10^6 in. cub. cms. respectively. Thus the largest measured had 125 times the volume of the smallest, so there seemed no tendency for the cavities to form equal in size. Exactly how those caverns were formed was not clear, but from their spherical shape they were presumably caused by drops of excess water. The slides seemed to suggest that more cavities were formed close to a pebble of aggregate, but as they also appeared in great abundance in plaster-of-paris, the presence of pebbles was evidently not essential to their formation; neat cement blocks as a rule did not show many cavities. It would be probably worth while to see if the number of holes per square cm. was related to the percentage of water used in mixing, and also their effect on the tensile strength of a block.

Apparently the "Michaelis" theory of the setting of cement claimed that there was a deposition of hydrated tricalcium aluminate from a super-saturated solution; and that that deposition took place in a partly colloidal and partly crystalline form—an excess of water appearing to favour the formation of crystals. In the slides the bulk of the cement appeared to be amorphous, but the walls of the cavities were very crystalline; if the cavities were formed by excess moisture that theory was apparently supported; in any case there was apparently a discontinuity of structure near the surface of internal cavities.

Besides spherical cavities the microscope also showed a certain number of minute canals following tortuous paths through the cement. The width of those ducts was, roughly, forty-millionths of an inch. The slides showed several canals in the cement, but only one case of a duct entering a cavity; that was not surprising when the minute size of the canals was remembered. Although the microscope revealed the existence of the ducts, and proved that ducts did enter cavities, it could not be expected to prove that all cavities had canals leading to them, although it was highly probable that that was actually the case. Indirect evidence on that point was given by taking a block that had one surface ground smooth, and smearing that surface copiously with water. If the surface were viewed through the microscope it was seen that the water surface instantly went hollow and the film quickly broke over each spot where there was a cavity. Also, if a drop of water were placed in a cavity it quickly ran into the block, and the receding hollow surface could be watched like water running out of a small tank; a drop placed on the smooth surface of the block, not in a cavity, took a much longer time to disappear. Whether or not the mass of the cement was permeable apart from those canals it was impossible to say, but it seemed probable that the bulk of the percolation took place through the ducts, and the cavities formed frequent tiny reservoirs in their course.

The passages and cavities in the cement were initially filled with air under atmospheric pressure, which had to be displaced wholly or partly by the entering water. In the case of a block completely submerged in water the air initially in the block was completely trapped, and consequently, must be driven by the entering water through the passages and caverns towards the centre of the block. Its original volume was thus reduced, causing a continuous rise in internal pressure as the water entered. The rise of internal air pressure reduced the resultant force causing the inflow of water, and, as that resultant force would decrease continuously as more water entered, the rate of absorption must be a decreasing function of the time, which experiment had shown to be the case. If the decreasing rate of absorption of the water were due, as suggested, to the compressing of the air that was initially in the block, then it should be possible to make that compressed air eject some of the absorbed water if the external head were removed. Experiments showed that such was the case.

The paper was illustrated by a number of slides showing photographs and curves relating to the experiments.

LAW REPORT.

Rating on Building Contracts.

AT the Manchester City Sessions on January 18 and 19, the Recorder, Mr. A. J. Ashton, K.C., heard the arguments in eleven appeals by builders and contractors, members of the Manchester, Salford and District Building Trades' Employers' Association, against rates levied by the Manchester Overseers. Mr. Wingate Saul, K.C., and Mr. Moxon appeared for the appellants and the Overseers were represented by Mr. Langdon, K.C., and Mr. J. E. Balmer.

Mr. Langdon stated that the firms concerned were Messrs. Jackson Brothers, Tinker & Young, Ltd., Normanton & Sons, Ltd., K. Carlyle & Co., Sir R. McAlpine & Partners, J. H. Bardsley, and G. W. Smith. They had entered into contracts with the Manchester Corporation for the erection of large numbers of houses in different parts of the city area, and in order to carry out those contracts they in effect transferred to the sites part of their builders' yards; they put up substantial buildings of wood or brick, which were used as offices, mess-rooms, store-rooms, mortar mills, and joiners' shops. The buildings were of a solid and substantial character and were intended to remain until the completion of the job. In every case except one they were upon the site where the work was proceeding; in the single exception they were a short distance away, but still upon land belonging to the Manchester Corporation. The Overseers, acting upon advice given to them, held that the appellants were liable to be rated in respect of these premises because they had control and were in beneficial occupation. The amount of the rate was not large in the individual cases, but the total was fairly considerable, and the principle involved was most important. A number of similar cases would be governed by the decision on the present appeals.

Mr. Wingate Saul said it was an important test case and it was convenient that all the appeals should be heard together.

Mr. Langdon said the question of beneficial occupation depended upon the construction of the Act 43 Elizabeth; in substance it meant that the person rated must be in occupation of the premises and receiving benefit from them without being subject to any general control by a superior landlord.

Mr. Wingate Saul said he was not concerned with the question of who was liable to be rated in respect of these buildings. His submission was that his own clients were not liable. In Holywell Union *v.* Halkyn Drainage Co. (1895 Appeal Cases) Lord Davey laid down the principle that if a person was only in subordinate occupation, subject at all times to the control and regulation of another, he had not an occupation in the strict sense of the term for the purposes of rating. Here the Manchester Corporation paid for the erection of the buildings and stipulated that no part of the work should be commenced without a written order from the City Architect, who was to give instructions and directions how the work should be done. When completed the buildings became the property of the Corporation, the contractor was prevented from removing them during the progress of the work; therefore the builders had nothing more than a subordinate occupation. Previous to the case, with one exception, no Assessment Committee had attempted to rate contractors in respect of buildings of the sort.

Mr. Langdon replied that it was only recently that buildings of so substantial a character had been erected by contractors upon the sites of their works; it was necessitated by the huge schemes which were going to be carried out.

After a long argument upon the conclusions to be drawn from the numerous cases reported in the legal authorities, the Recorder intimated that he would state his decision in the form of a special case, giving his reasons.

Proposed New Cinema at Doncaster.

Plans have been approved for the erection of a new cinema and café in High-street, Doncaster. The architects are Messrs. Wilburn & Atkinson, St. George's Gate, Doncaster.

NEW BUILDINGS IN LONDON.

WALHAM GREEN.—The work of erection of ten blocks of Ada Lewis Trust Buildings in Farm-lane is now in an advanced stage. Brick construction is being employed, and the buildings, each having four floors, will be divided into self-contained flats. The architects are Messrs. Joseph, of 2, Paul's Bakehouse-court, E.C. 4. The main contract is being carried out by Messrs. Higgs & Hill, Ltd., of Crown Works, South Lambeth-road, S.E. A number of sub-contracts have been placed as follows:—Floors: The Kleine Patent Fire-Resisting Flooring Syndicate, 133-6, High Holborn, W.C. 1; tiling: Messrs. Carter & Co. (London), Ltd., 29, Albert Embankment, S.E. 11; sanitary engineers: Messrs. John Bolding & Sons, Grosvenor Works, Davis-street, W. 1. It is understood that three blocks of flats will probably be completed by the end of March next.

CAMBERWELL.—A large new billiard hall, with 23 full-size tables, café, and lounge, is now in course of erection in Coldharbour-lane. The builders are Messrs. Holliday & Greenwood, Ltd., of Stewart's-road, Battersea, S.W. The plans, which have been drawn up by the architect, Mr. Frank Haysman, of 238, Brixton-road, S.W., provide for a single-floor brick building measuring approximately 90 ft. by 82 ft. A concrete floor is being laid, and the exterior walls will be finished with glazed tiles. A number of sub-contracts have been placed as follows:—Steel window-frames: Messrs. Crittall & Co., Braintree; steelwork: Messrs. Rubery Owen, Darlaston; glazed tiles: Messrs. W. B. Simpson & Sons, St. Martin's Works, 100, St. Martin's-lane, W.C.; asphalters: Messrs. Ragusa Asphalte Co., Ltd., Tredegar-road, Bow, E. 3.

ACTON.—Work has just commenced on the extension to the works of the Thompson & Norris Manufacturing Co., Ltd., corrugated paper manufacturers, of Worple Way. The general contract, which has been secured by Messrs. F. D. Huntington, Ltd., of 11, Hanover-square, W.1, provides for the erection of a one-story building on a site adjoining the existing premises and having elevations to Stanley-gardens and Canham-road. The new building will be built in brickwork and steel construction, having an area of approximately 128 ft. by 83 ft. and a height of 15 ft. to eaves. It will be fitted with a glass roof extending the entire length of the building. The sub-contract for the steelwork has been secured by the Aston Construction Co., Ltd., of Eagle Wharf-road, N. The architect is Mr. R. W. Weekes, of Maxwell House, Arundel-street, W.C.2. It is understood the builders are themselves supplying the steel windows, &c.

EAST CENTRAL.—A new modern office building, occupying Nos. 27, 29, 31 and 33, Moorgate-street, is in course of erection for the Provident Mutual Life Assurance Association, whose temporary address during re-building is the Outer Temple, 222-225, Strand, W.C.2. It is understood the London Joint City & Midland Bank, Ltd., will remove their branch from 69, Coleman-street, E.C., to these premises when completed. The architects for the Assurance Society are Messrs. Campbell Jones, Son, & Smithers, of 9, Dowgate-hill, E.C. The architect for the Bank is Mr. T. B. Winney. The general contractors are Messrs. Higgs & Hill, Ltd., of Crown Works, South Lambeth-road. The building is being constructed on modern lines with six floors and a basement and sub-basement. Brick and steel construction are being employed with a stone front. The sub-contractors are as follows;—Steelwork: The Aston Construction Co., Ltd., Eagle Wharf-road, N.; floors: The Siegwart Fireproof Floor Co., Ltd., 231, Strand, W.C.2; windows: Messrs. Wm. Morris & Co. (Westminster), Ltd., 60, Rochester-row, S.W.; asphalters: Messrs. Thomas Faldo & Co., Ltd., Windsor House, Kingsway, W.C.2; heating: Messrs. Wheeler & Sons, 1A, Victoria-gardens, W.11; stonework: The South-Western Stone Co., Ltd., 110A, New-road, Battersea, S.W.8; well-borers: Messrs. C. Isler & Co., Ltd., 33, Bear-lane, S.E.1; lifts: Messrs. Marryat & Scott, Ltd., 28, Hatton-garden, E.C. Grey granite is being supplied by Messrs. Cooper, Western & Co., Ltd.

WESTMINSTER.—It is understood that negotiations are now taking place between the District Railway Co., who own the unoccupied land above Victoria underground station, and the Superb Super Cinema Co. with a view to the former letting the site to the latter for the purpose of building on it a new cinema. Further details of the scheme will be available shortly on application to Mr. Anderson of the Cinema Company referred to above. The District Railway Co. is endeavouring to relieve the congestion of passenger traffic during rush hours by widening the existing staircase leading from the booking hall to Victoria-street, involving structural reinforcements to girders, &c.

BUILDING SURVEYORS' AND INSPECTORS' ASSOCIATION.

A SPECIAL general meeting of the Building Surveyors' and Inspectors' Association was held at the Town Hall, Manchester, on January 28, when a good attendance of members from various towns was present. The Secretary made a report on the progress of the Association, which contained several suggestions relative to the future work and the means of improving and extending the activities of the Association.

A recommendation from the Educational and Examinations Sub-Committee, approved by the Executive, was submitted as follows:—"That the Association adopt the R.I.B.A. Examination for Building Surveyors to Local Authorities for future members, to come into operation at a date to be subsequently determined, and subject to the acceptance by the R.I.B.A. of certain terms now under consideration." This was unanimously agreed to, and was considered to be perhaps the most important step taken, and one that should result in the Association and its members being placed in a more dignified position, and assist in securing recognition. The Educational Sub-Committee, in arriving at its recommendation, made a complete survey of all existing examinations, including several offers to conduct examinations from existing engineering and other institutions. Correspondence was also reported with the Board of Education in connection with a prospective scheme of national examinations in constructional building work, also correspondence with the Institute of Builders, the primary difficulty experienced being that of varying standards required in most of the existing examinations held by professional institutions.

The next important matter was that of adopting the proposed scheme for co-operation of sectional and professional societies with the National Association of Local Government Officers. This proposal originated at the last annual meeting of the N.A.L.G.O., when it was decided to delete the principle of affiliation from its constitution. It was unanimously agreed to, and considered that the result would be to widen the scope and activities of all the sectional and professional societies affiliated to the N.A.L.G.O.

A preliminary report was submitted by the Vice-Chairman on the question of statutory recognition, on which a considerable amount of discussion took place, and it was resolved to refer the matter to a sub-committee for a more detailed scheme with a view to its going forward to the N.A.L.G.O. for further action.

The question of service conditions was reported to be under consideration by a special sub-committee. The chairman reported the progress made by the Joint Consultative Committee of the N.A.L.G.O. on salaries of members of sectional and professional societies employed by local authorities, which is expected to mature at an early date, and when so complete it is hoped to send it forward for approval by the Provincial Whitley Councils, or alternatively direct to the Ministry of Health.

STAFF DINNERS.

The well-known firm of shopfitters, Messrs. Stanley Jones & Co., Ltd., of Shepherd's Bush and 8, Gray's Inn-road, W.C., held their annual staff dinner at Pagani's Restaurant, W., on January 27. Mr. F. G. Lucas, Governing Director, occupied the chair, and between 50 and 60 sat down to dinner.

In the course of the subsequent toasts, the Governing Director dealt with the trading of the past year and prospects for 1922, and expressed the opinion that prospects were very much brighter this year than they were at the beginning of last year. Workmen and their leaders, he said, were beginning to appreciate the economic law, and now was the time for employers to take labour into their counsels and utilise it as it ought to be utilised—as a real entity, not as a piece of machinery.

Mr. Lambert, the Works Director, emphasised that hard work was the need for 1922, with the utilisation of such facilities as were in their possession.

A presentation was made to Mr. C. E. Speaight, the retiring Sales Director, who had been with the company some 15 years, the presentation taking the form of a silver ink-stand.

The 27th annual staff dinner of Messrs. E. Pollard & Co., Ltd., was held at the Great Central Hotel on January 21. Mr. E. Pollard was in the chair, supported by Mr. H. N. Barnes (director and general manager), and his co-directors, Mr. H. E. Pollard, Mr. M. J. Larking, Mr. A. C. Caldicott, Mr. R. Thomson, Mr. F. W. Elsbury, and Mr. A. A. B. Walford, and 210 members of the staff and guests were present.

In the course of a speech after dinner, the chairman said the year 1921 was perhaps the most worrying, the most vexing, and the most trying year of their business career. After the war the public were buying very heavily in all articles, especially luxury goods; manufacturing businesses like theirs and others could not supply their wants, and could not get enough stocks or enough goods for their requirements. They got into the habit of ordering double as much as they wanted. It seemed a good business policy. Then suddenly people stopped buying the articles, but stock still came in from the manufacturers. Merchants got their warehouses and shelves filled up with goods at top prices. The slump set in, and goods were worth perhaps 75 per cent. less than they had paid for them. Perhaps the worst phase that followed on the slump, and certainly the worst phase for the nation, was the wave of unemployment that swept over the country, which entailed an extension of the doles, because one could not let men and women starve, and that had left another problem, and that was the unemployment dole brought with it such a temptation to take advantage. He feared we should never get back to the old days until we got a different form of unemployment dole. The main business of the firm was shopfitting, and the slump did not affect them very greatly; but it certainly affected them by bringing back healthy competition, which they had always favoured, as showing more plainly the value of their good name and their goodwill.

Mr. H. N. Barnes, Mr. R. W. Lone, Mr. M. J. Larkin, Mr. E. L. Latham, Miss W. Barnes, Mr. A. A. B. Walford, and Mr. P. H. Mortimer, also spoke.

The Victoria and Albert Museum.

The Victoria and Albert Museum has recently received new gifts of Japanese and Chinese lacquer, and these are now on exhibition in Room 41 of the Museum.

REDUCTIONS IN WAGES.

THE revision in wages on February 1 involves in the London area a drop of just over 2 per cent. for mechanics, and just under 2.6 per cent. for unskilled labourers. The percentage, so far as the mechanics are concerned, can be taken as representing the effect of the alteration, as the reduction for painters of 2.12 per cent. is to some extent balanced by the smaller drop for plumbers and masons working on the building itself; with labourers the percentage is 2.43 per cent.

In districts now paying lower rates than London the percentage of the drop, due to a uniform reduction of ½d. per hour, is much greater. Over a considerable proportion of the country the mechanics' wages have fallen 2.43 per cent., and the labourer's 3.12 per cent. In London the total drop since the high-water period in May, 1920, to May, 1921, amounts to 14.3 per cent. for skilled, and 24 per cent. for other labour, the present rates for mechanics being little more than double the 1914 rates.

TRADE NEWS.

The telephone number of Messrs. Dunlop & Ranken, Ltd., iron and steel stockholders, of 9, Park-lane, Leeds, has been altered to 27301 (ten lines).

Messrs. Lumbys, Ltd., of Greetland, Halifax, have reduced the prices of their hot-water boilers, and a new terms sheet will be sent on application.

Messrs. Blundell, Spence & Co., Ltd., have issued a pamphlet describing their new flat oil paint (flat "Japonette"), which they are now manufacturing for interior decorative purposes. One of the advantages of this paint is that it can be applied with a large flat brush, which makes it most economical in use.

The En-Tout-Cas Co., Ltd., of Syston, Leicestershire, have issued a brochure containing 56 pages of matter of interest to all hard-court tennis players. The booklet, which may be had on application, contains illustrations of "En-Tout-Cas" courts laid down at famous tennis resorts, photographs of leading players, and illustrations of a wide range of specialities, while several pages are devoted to the conversion of other types of courts into "En-Tout-Cas" courts, which are patented in Great Britain, the United States, and Canada.

We have received a pamphlet issued by Messrs. Holophane, Ltd., of 12, Carteret-street, S.W., containing a description of the new "Holophane" daylight units, which are a combination of the "Holophane" prismatic reflector with Chance's daylight glass. They represent an effort to obtain with accuracy, simplicity, and comparative cheapness the required correction of the gas-filled electric lamp to a colour composition equivalent to daylight. It is claimed that "Holophane" daylight units not only provide a light for matching at night, but give a more reliable average daylight than is often obtainable, particularly in towns.

The possibilities of "Non-Poro" cement waterproofing compound, and the method of its use for various purposes, are well set out in a booklet issued by Messrs. Broad & Co., Ltd., 4, South Wharf, Paddington, W.2, the sole agents for the material in London and the Home Counties. The material is suitable not only for mixing with concrete in order to make new work water resisting, but also for general repairs. In the booklet to hand are full directions for the use of the compound, specifications for concretes, wearing coats, renderings, and washes for various purposes, and illustrations of the method of application of "Non-porised" cement to concrete floors, flashings, hollow walls, flooded basements, &c.

Builders' Benevolent Institution.

An election of pensioners by the Builders' Benevolent Institution will take place at 48, Bedford-square, W.C.1, on April 25. Applications must be received by February 27. Candidates must not be under 55 years of age, and must have been in business within 12 miles of Charing Cross. Independent income not to exceed £50 per annum.

RATES OF WAGES IN THE BUILDING TRADE.

The following are the rates of wages in the building trade in England and Wales. Every endeavour is made to ensure accuracy, but we cannot be responsible for errors that may occur:—

	Masons.	Bricklayers.	Carpenters, Joiners.	Plasterers.	Slaters.	Plumbers.	Painters.	Masons' Labourers.	Bricklayers' Labourers.	Plasterers' Labourers.
Aberdare	2/0	2/0	2/0	2/0	2/0	2/0	2/0	1/7		
Accrington	2/0	2/0	2/0	2/0	2/0	2/0	2/0	1/7		
Altrincham	2/0	2/0	2/0	2/0	2/0	2/0	2/0	1/7		
Ashton-under-Lyne	2/0	2/0	2/0	2/0	2/0	2/0	2/0	1/7		
Barnsley	2/0	2/0	2/0	2/0	2/0	2/0	2/0	1/7		
Barrow-in-Furness	2/0	2/0	2/0	2/0	2/0	2/0	2/0	1/7		
Barry	2/0	2/0	2/0	2/0	1/9	2/0	1/9	1/4½		
Bath	1/9	1/9	1/9	1/9	1/8	1/9	1/8	1/3½		
Bedford	1/8	1/8	1/8	1/8	2/2	2/2	2/2	1/9½		
Birkenhead	2/2	2/2	2/2	2/2	2/0	2/0	2/0	1/7		
Birmingham	2/0	2/0	2/0	2/0	2/0	2/0	2/0	1/7		
Bishop Auckland	2/0	2/0	2/0	2/0	2/0	2/0	2/0	1/7		
Blackburn	2/0	2/0	2/0	2/0	2/0	2/0	2/0	1/7		
Blackpool	2/0	2/0	2/0	2/0	2/0	2/0	2/0	1/7		
Bolton	2/0	2/0	2/0	2/0	2/0	2/0	2/0	1/7		
Bournemouth	1/8	1/8	2/0	2/0	1/8	2/0	1/8	1/3½		
Bradford	2/0	2/0	2/0	2/0	2/0	2/0	2/0	1/7		
Bridgwater	1/6½	1/6½	1/8	1/8	2/0	2/0	2/0	1/7		
Brighton	1/8	1/8	2/0	2/0	2/0	2/0	2/0	1/7		
Bristol	2/0	2/0	2/0	2/0	2/0	2/0	2/0	1/7		
Burnley	2/0	2/0	2/0	2/0	2/0	2/0	2/0	1/7		
Burton-on-Trent	1/10½	1/10½	1/10½	1/10½	1/10½	1/10½	1/10½	1/5½		
Bury	2/0	2/0	2/0	2/0	2/0	2/0	2/0	1/7		
Cambridge	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½		
Cardiff	2/0	2/0	2/0	2/0	2/0	2/0	2/0	1/7		
Chatham	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/4½		
Chelmsford	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/7		
Cheltenham	1/9	1/9	1/9	1/9	1/9	1/9	1/9	1/7		
Chester	2/0	2/0	2/0	2/0	2/0	2/0	2/0	1/7		
Chesterfield	2/0	2/0	2/0	2/0	2/0	2/0	2/0	1/3½		
Colchester	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/7		
Coventry	2/0	2/0	2/0	2/0	2/0	2/0	2/0	1/5½		
Crewe	1/10½	1/10½	1/10½	1/10½	1/10½	1/10½	1/10½	1/7		
Darlington	2/0	2/0	2/0	2/0	2/0	2/0	2/0	1/7		
Derby	2/0	2/0	2/0	2/0	2/0	2/0	2/0	1/7		
Doncaster	2/0	2/0	2/0	2/0	2/0	2/0	2/0	1/5½		
Dudley	1/10½	1/10½	1/10½	1/10½	1/10½	1/10½	1/10½	1/7		
Durham	2/0	2/0	2/0	2/0	2/0	2/0	2/0	1/7		
East Glam. and Mon. Valleys	2/0	2/0	2/0	2/0	2/0	2/0	2/0	1/3½		
Exeter	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3		
Folkestone	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/4½		
Gloucester	1/9	1/9	1/9	1/9	1/9	1/9	1/8	1/5½		
Grantham	1/10½	1/10½	1/10½	1/10½	1/10½	1/10½	1/10½	1/7		
Grays	2/0	2/0	2/0	2/0	2/0	2/0	2/0	1/7		
Grimsby	2/0	2/0	2/0	2/0	2/0	2/0	2/0	1/7		
Great Yarmouth	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/3		
Guildford	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/4½		
Halifax	2/0	2/0	2/0	2/0	2/0	2/0	2/0	1/7		
Harrogate	2/0	2/0	2/0	2/0	2/0	2/0	2/0	1/7		
Hartlepools	2/0	2/0	2/0	2/0	1/7	2/0	1/7	1/7		
Hastings	1/7	1/7	1/7	1/7	1/9	1/9	1/9	1/7		
Hereford	1/9	1/9	1/9	1/9	2/0	2/0	2/0	1/3½		
Huddersfield	2/0	2/0	2/0	2/0	2/0	2/0	2/0	1/7		
Hull	2/0	2/0	2/0	2/0	1/8	1/8	1/8	1/5½		
Ipswich	1/8	1/8	1/8	1/8	2/0	2/0	2/0	1/7		
Lancaster	2/0	2/0	2/0	2/0	1/10½	2/0	1/10½	1/7		
Leamington Spa	1/10½	1/10½	1/10½	1/10½	2/0	2/0	2/0	1/5½		
Leeds	2/0	2/0	2/0	2/0	2/0	2/0	1/10½	1/7		
Leicester	2/0	2/0	2/0	2/0	1/10½	2/0	2/0	1/9½		
Lichfield	1/10½	1/10½	1/10½	1/10½	2/0	2/0	2/0	1/7		
Lincoln	2/0	2/0	2/0	2/0	2/2	2/2	2/2	1/7		
Liverpool	2/2	2/2	2/2	2/2	2/0	2/0	2/0	1/7		
Llanelly	2/0	2/0	2/0	2/0	2/0	2/0	2/0	1/11		
London	2/0	2/0	2/0	2/0	2/0	2/0	2/0½	2/0		
Loughborough	2/0	2/0	2/0	2/0	2/0	2/0	2/0	1/8		
Luton	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/7		
Maidstone	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/7		
Manchester	2/0	2/0	2/0	2/0	2/0	2/0	2/0	2/0		
Mansfield	2/0	2/0	2/0	2/0	2/0	2/0	2/0	2/0		
Merthyr Tydfil	2/0	2/0	2/0	2/0	2/0	2/0	2/0	2/0		
Middlesbrough	2/0	2/0	2/0	2/0	2/0	2/0	2/0	2/0		
Newcastle-on-Tyne	2/0	2/0	2/0	2/0	2/0	2/0	2/0	2/0		
Newport, Mon.	2/0	2/0	2/0	2/0	1/10½	2/0	1/10½	1/7		
Northampton	1/10½	1/10½	1/10½	1/10½	1/8	1/8	1/8	1/7		
Norwich	1/8	1/8	1/8	1/8	2/0	2/0	2/0	1/7		
Nottingham	2/0	2/0	2/0	2/0	1/9	2/0	1/9	1/7		
Oakham	1/9	1/9	1/9	1/9	2/0	2/0	2/0	1/7		
Oldham	2/0	2/0	2/0	2/0	1/8	1/8	1/8	1/7		
Oxford	1/8	1/8	1/8	1/8	1/10	1/10	1/10	1/7		
Plymouth	1/10	1/10	1/10	1/10	2/0	2/0	2/0	1/7		
Pontypridd	2/0	2/0	2/0	2/0	1/8	1/8	1/8	1/7		
Portsmouth	1/8	1/8	1/8	1/8	2/0	2/0	2/0	1/7		
Preston	2/0	2/0	2/0	2/0	1/8	1/8	1/8	1/7		
Reading	1/8	1/8	1/8	1/8	2/0	2/0	2/0	1/7		
Rochdale	2/0	2/0	2/0	2/0	1/7	1/7	1/7	1/7		
Rochester	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/7		
Rugby	1/10½	1/10½	1/10½	1/10½	1/8	1/8	1/8	1/7		
St. Albans	1/8	1/8	1/8	1/8	2/0	2/0	2/0	1/7		
St. Helen's	2/0	2/0	2/0	2/0	1/10½	1/10½	1/10½	1/7		
Scarborough	1/10½	1/10½	1/10½	1/10½	2/0	2/0	2/0	1/7		
Sheffield	2/0	2/0	2/0	2/0	1/10½	1/10½	1/10½	1/7		
Shrewsbury	1/10½	1/10½	1/10½	1/10½	1/8	1/8	1/8	1/7		
Southampton	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/7		
Southend-on-Sea	1/8	1/8	2/0	2/0	2/0	2/0	2/0	1/7		
Southport	2/0	2/0	2/0	2/0	2/0	2/0	2/0	1/7		
South Shields	2/0	2/0	2/0	2/0	2/0	2/0	2/0	1/7		
Stockport	2/0	2/0	2/0	2/0	2/0	2/0	2/0	1/7		
Stockton-on-Tees	2/0	2/0	2/0	2/0	2/0	2/0	1/11	1/7½		
Stoke-on-Trent	2/0	2/0	1/8	1/8	1/8	1/8	1/8	2/0		
Stroud	1/8	1/8	2/0	2/0	2/0	2/0	2/0	1/7		
Sunderland	2/0	2/0	2/0	2/0	2/0	2/0	2/0	1/8		
Swansea	2/0	2/0	1/8	1/8	1/8	1/8	1/8	1/8		
Taunton	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8		
Torquay	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8		
Tunbridge Wells	1/8	1/8	2/0	2/0	2/0	2/0	2/0	2/0		
Wakefield	2/0	2/0	1/10½	1/10½	1/10½	1/10½	1/10½	1/10½		
Walsall	1/10½	1/10½	2/0	2/0	2/0	2/0	2/0	2/0		
Warrington	2/0	2/0	2/0	2/0	2/0	2/0	2/0	2/0		
West Bromwich	2/0	2/0	2/0	2/0	2/0	2/0	2/0	2/0		
Wigan	2/0	2/0	1/8	1/8	1/8	1/8	1/8	1/8		
Windsor	1/8	1/8	2/0	2/0	2/0	2/0	2/0	2/0		
Wolverhampton	2/0	2/0	1/10½	1/10½	1/10½	1/10½	1/10½	1/10½		
Worcester	1/10½	1/10½	1/10½	1/10½	1/10½	1/10½	1/10½	1/10½		
York	1/10½	1/10½	1/10½	1/10½	1/10½	1/10½	1/10½	1/10½		

(For rates of wages in the Building Trade in Scotland, see page 206.)

CONTRACTS, COMPETITIONS, &c.

For some contracts still open, but not included in this List, see previous issues. Those with an asterisk are advertised in this number. Certain conditions beyond those given in the following information are imposed in some cases, such as that advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed; that no allowance will be made for tenders; and that deposits are returned on receipt of a bona-fide tender unless stated to the contrary.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in; the name and address at the end is the person from whom or place where quantities, forms of tender, &c., may be obtained.

BUILDING AND PAINTING.

FEBRUARY 4.—**Cardiff.**—CEMENTING.—For cementing at 15 and 16, Park-crescent, Barry, for the Board of Guardians. Mr. A. J. Harris, Clerk, 11, Park-place, Cardiff.

FEBRUARY 4.— **Cowbridge.**—CONVERSION.—Alterations to and the conversion and adaptation of 79, Eastgate-street, for the purpose of Council Offices and a Council Chamber, for the R.D.C. Mr. Edward Loveluck, architect, 12, Dunraven-place, Bridgend. Deposit £3 3s.

FEBRUARY 6.—**Barnsley.**—FILTER HOUSE.—Construction of a filter house with appurtenant works at Midhope Reservoir, for the T.C. Waterworks Office, Doncaster-road, Barnsley. Deposit £2 2s.

FEBRUARY 6.— **Barnsley.** — PAINTING.—Painting and decorating the interior of the Infant Welfare Centre, Market-street, for the T.C. Borough Engineer, Fairfield House, Barnsley.

FEBRUARY 6.—**Coleraine.**—OFFICES, &C.—Erection of branch offices and residence, for the Bank of Ireland. Messrs. W. H. Stephens & Son, 13, Donegall-square North, Belfast. Deposit £2 2s.

FEBRUARY 6.—**Cowbridge.**—LAVATORIES.—Erection of public lavatories at Llantwit Major, for the R.D.C. Mr. G. E. Morris, surveyor, 79, Eastgate-street, Cowbridge.

FEBRUARY 6. — **Midlothian.**—EXTENSIONS—Extensions to West Calder High Schools, for the Midlothian E.C. County Education Offices, 1, India Buildings, Edinburgh.

FEBRUARY 7.— **Cambusnethan.**—BRIDGE.—Repair and widening of Bonkle Bridge and approaches, in the Parish of Cambusnethan, for the Lanark C.C. Mr. Robert Spittal, Road Surveyor, District Office, Hamilton.

✱FEBRUARY 7.—**Clacton-on-Sea.**—Additional shops and tea room to be completed by May 20, 1922, for Clacton Corner House, Ltd. Mr. G. H. B. Gould, A.R.I.B.A., Station-road, Clacton-on-Sea, Essex. Deposit £1 1s.

FEBRUARY 7.—**Hammersmith.**—BUILDING: BRICK AND CONCRETE.—Construction of an engine house in brick and concrete with slate roof; internal dimensions 150 ft. by 50 ft. by 40 ft. high to the eaves, partly above and partly below ground, with office, store, workshop, and cooling water tank, together with supply, suction and delivery culverts within the building and foundations for engines, pumps, and auxiliary machinery; also construction of three penstock chambers outside the building with connecting culvert and other subsidiary works, for the L.C.C. Chief Engineer, 19, Charing Cross-road, W.C.2. Deposit £5.

FEBRUARY 7.—**London.**—ENGINE HOUSE, &C.—Construction of an engine house, foundations for engines, pumps, and auxiliary machinery; also the construction of three penstock chambers outside the building of the Hammersmith pumping station, for the L.C.C. Chief Engineer, 19, Charing Cross-road, W.C.2. Deposit £5.

FEBRUARY 7.— **Warrington.** — ALTERATIONS. — Alterations at Warrington Post Office, for the Commissioners of H.M.O.W. Drawings, &c., of the Postmaster, Warrington. Quantities, &c., from Contracts Branch, H.M.O.W.. King Charles-street, S.W.1. Deposit £1 1s.

FEBRUARY 8.—**Littlehampton.**—EXTENSIONS.—Erection of a lean-to extension of engine house at Warningcamp Waterworks, for the U.D.C. Mr. Arthur Shelley, Clerk, Town Offices, Littlehampton.

FEBRUARY 8.—**Manchester.**—PUBLIC WASH-HOUSE.—Erection of a public wash-house adjoining the Newton Heath Baths, for the T.C. City Architect, Town Hall, Manchester. Deposit, £1 1s.

FEBRUARY 8 —**Paignton.**—HOUSES.—Erection of semi-detached houses at Paignton, for Mrs. R. M. Petherbridge and Miss Phillips. Mr. J. C. Beare, architect, 42, Devon-square, Newton Abbot. Deposit, £2 2s.

FEBRUARY 8.—**Puddletrenthide.**—HALL.—Erection of a memorial hall in the Parish of Puddletrenthide. Mr. Sydney A. Jackson, architect, National and Provincial Bank Chambers, Dorchester.

FEBRUARY 8.—**Swansea.**—HOUSES.—Erection of 119 houses in groups of 18, 20, 24, 33 and 24, on the Town-hill Estate, for the T.C. Mr. E. E. Morgan, Borough Architect, 3, Prospect-place, Deposit £3 3s.

FEBRUARY 9.—**Bournemouth.**—CONVENIENCES.— Alterations and additions to women's and men's conveniences at the East and West of Bournemouth Pier, for the T.C. Mr. F. P. Dolamore, Borough Engineer, Municipal Offices, Bournemouth. Deposit £1 1s.

FEBRUARY 9. — **Rotherham.** — DECORATIONS.—For internal decorations of the Tuberculosis Dispensary, Carnson House, Moorgate, Rotherham. West Riding Architect, County Hall, Wakefield.

FEBRUARY 10.—**Birmingham.**—REPAIRS, &C.—Exterior painting and repairs to the stonework at the Union Offices, Edmund-street, for the Board of Guardians. Mr. James Curtis, Clerk, Union Offices, Edmund-street, Birmingham. Deposit £1 1s.

FEBRUARY 11.—**Edinburgh.**—OFFICE, &C.—(1) Provision of ladies' lavatory at Royal Scottish Museum, Edinburgh; (2) Provision of a public Office at South Side Sorting Office, Edinburgh, for H.M. Office of Works. Architect, H.M. Office of Works, 4-5, Drumsheugh-gardens, Edinburgh. Deposit £1 1s. each contract.

FEBRUARY 11.—**Salford.**—SUB-STATION.—Erection of a small sub-station at Heaton Park, for the T.C. Borough Electrical Engineer, Frederick-road, Salford.

FEBRUARY 13.—**Edinburgh.**—WALLS, &C.—Repair and rebuilding of walls, erection of new wall, and the pointing of north face of wall at main roadway at proposed public park, Keith-crescent, Blackhall, for the T.C. Mr. James A. Williamson, City Architect, Public Works Office, City Chambers, Edinburgh.

FEBRUARY 13.—**Girsby.**—SCHOOL.—Erection of a new Council School to accommodate 40 children at Girsby, for the North Riding of Yorkshire C.C. Mr. J. C. Wrigley, County Education Offices, Northallerton.

FEBRUARY 13.—**Rawcliffe.**—PAINTING. — External painting at Rawcliffe Hall Institution, Rawcliffe, near Goole, for the West Riding Mental Deficiency Act Committee. West Riding Architect, County Hall, Wakefield.

FEBRUARY 13. — **Sheffield.**—EXCAVATIONS. — Preliminary works (excavations, foundations, &c.) in connection with a new telephone exchange at Sheffield, for the Commissioners of H.M. Office of Works. Contracts Branch, King Charles-street, S.W.1. Deposit £1 1s.

FEBRUARY 13. — **Stornoway.** — CONVERSION.—Converting the Imperial Hotel, Stornoway, into a girls' hostel. Messrs. A. Maitland & Sons, Architects, Stornoway.

FEBRUARY 14.—**Bootle.**—MASONRY, &C.—Supply and erection of a stone base and pedestal and the fixing of bronze figures in connection with the War Memorial, Stanley Gardens, Bootle, for the County Boro' War Memorial Committee. Mr. B. J. Wolfinden, Boro' Engineer and Surveyor, Town Hall, Bootle.

FEBRUARY 14.—**Braintree.**—HOUSES.—Erection of eight cottages at Great Coggeshall; 4 at Little Coggeshall: and 6 at Panfield, for the R.D.C. Mr. A. R. Dannatt, architect, Great-square, Braintree. Deposit £1 1s.

FEBRUARY 14.—**Consett.**—HOUSES.—Erection of 48 houses at the Housing Area, Grove-farm, for the U.D.C. Mr. T. Hutton, Surveyor, Council Offices, Consett. Deposit £3 3s.

FEBRUARY 14.—**Various Places.**—PAINTING.—Painting the station buildings, &c. (1) West Hartlepool Station, Goods, and Engine Sheds, (2) Haswell Station, to Hartlepool, including Thornley Branch, and Easington to Hart, for the North-Eastern Railway Co. Mr. W. D. Rudgard, District Engineer, Bishop Auckland. Deposit £2 each contract.

FEBRUARY 14.—**Various Places.**—PAINTING.—Painting the station buildings, &c. (1) Pelaw Junction to South Shields exclusive of Pelaw Station, (2) Pelaw Junction to Sunderland exclusive of Pelaw and Sunderland Stations, (3) Consett Branch, Relly Mill Signal Box to Consett Junction and Swalwell, for the North-Eastern Railway Co. Mr. F. E. Harrison, District Engineer, Forth Banks, Newcastle. Deposit £2 each contract.

FEBRUARY 14.—**Welwyn.**—HOUSES.—Erection of 50 cottages for the R.D.C. Mr. H. G. Cherry, architect, 97, Jermyn-street, S.W. Deposit £2 2s.

FEBRUARY 15.—**Kent.** — VARIOUS WORKS.—(*a*) Adaptations and repairs to farm house, cottages, and farm buildings at Brockton Farm, Charing Heath; (*b*) sundry repairs, &c., to cottage and farm buildings at Payne Land Farm, Frittenden; (*c*) erecting a new shed and sundry repairs to cottage and farm buildings at Johnson's Farm, Ash-next-Ridley; (*d*) sundry repairs to cottages and farm buildings at Deerton-street, Teynham. County Land Agent, Sessions House, Maidstone.

FEBRUARY 15.—**Leeds.**—ALTERATIONS.—Alterations at Shadwell Industrial School, for the T.C. Architect's Section, Education Offices, Calverley-street, Leeds.

✱FEBRUARY 15.—**London.**—ROOFING.—Re-roofing of portico at the National Gallery, London, for The Commissioners of H.M. Office of Works. Contracts Branch, King Charles-street, London, S.W.1. Deposit £1 1s.

FEBRUARY 17.—**Conisborough.**—HOUSES.—Erection of 32 houses, for the U.D.C. Mr. H. Thirlwall, Surveyor, Church-street, Conisborough. Deposit £2.

FEBRUARY 18.—**Various Places.**—PAINTING.—Painting at the undermentioned places: (1) Great Howard-street and South Docks Goods Stations, and Liverpool to Kirkdale and Bank Hall; (2) Aintree to Lostock Hall, &c.; (3) Daisy Field Junction to Padiham Junction; (4) Bolton to Blackburn, &c.; (5) Bolton and Wigan Engine Sheds; (6) Bacup, Accrington, Rose Grove, and Colne Engine Sheds, and Carriage Sheds at Colne; (7) Victoria Station, Manchester, and Manchester Loop Line; (8) Hollinwood Branch; (9) Halifax Station and Ovenden Branch; (10) Bailiff Bridge and Clifton-road Branch, and Low Moor, Sowerby Bridge, and Mirfield Engine Sheds; (11) Barnsley and Silkstone Branches; (12) Wakefield Engine Shed and Enginemen's Lodging House; (13) Knottingley to Goole; (14) Fleetwood Engine Shed and Engineering Works, for the London and North-Western Railway Co. Divisional Engineer, Hunts Bank, Manchester.

FEBRUARY 20.—**Aylesbury.**—PAINTING.—Painting, &c., of the Town Hall staircase, &c., and Cambridge-street property, for the T.C. Mr. W. H. Taylor, Borough Surveyor, Town Hall, Aylesbury.

FEBRUARY 21.—**Chesterfield.**—HOUSES.—Erection of 77 houses on St. Augustine's-road site, in three contracts, for the T.C. Messrs. Rollinson & Son, architects, 10, Corporation-street, Chesterfield. Deposit £1 1s.

✱FEBRUARY 21. — **Durham.** — ALTERATIONS AND ADDITIONS.—Alterations and additions to the Ministry of Pensions Hospital, Shotley Bridge, Co. Durham, for The Commissioners of H.M. Office of Works. Contracts Branch, King Charles-street, London, S.W.1. Deposit £1 1s.

✱FEBRUARY 21.—**Wigan.**—ALTERATIONS.—Alterations at Wigan Post Office for the Commissioners of His Majesty's Office of Works. Contracts' Branch, King Charles-street, London, S.W.1. Deposit £1 1s.

✱FEBRUARY 22.—**Edmonton, N.18.**—PAINTING.—External painting, &c., of North Middlesex Hospital, Edmonton, and Enfield House and Fortescue Villas, Enfield, for the Guardians of the Edmonton Union. Mr. J. C. S. Mummery, Architect to the Guardians, 34, Bloomsbury-square, W.C.1.

BUILDING TRADE WAGES IN SCOTLAND.*

THE following are the present rates of wages in the building trade in the principal towns of Scotland. Every endeavour is made to ensure accuracy, but we cannot be responsible for errors that may occur:—

	Masons.	Bricklayers.	Carpenters, Joiners.	Plasterers.	Slaters.	Plumbers.	Painters.	Masons' Bricklayers' Labourers.	Plasterers'
Aberdeen	1/10½	1/10½	1/10½	1/10½	1/10½	1/10½	1/7	1/5½ to 1/6½	
Airdrie	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	—	1/7½	
Alexandria	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	—	1/7½	
Arbroath	1/11½	1/11½	1/11½	1/11½	1/11½	1/11½	1/11½	1/5½	
Ayr	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	1/9	1/5½ to 1/6½	
Bathgate	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	1/9	1/5½ to 1/6½	
Blairgowrie	1/11½	1/11½	1/11½	1/11½	1/11½	1/11½	—	—	
Bo'ness	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	2/-	1/8	
Coatbridge	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	—	1/7½	
Dumbarton	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	1/9	1/7½	
Dumfries	1/11½	1/11½	1/11½	1/11½	1/11½	1/11½	1/7½	1/6 to 1/7	
Dundee	2/0	2/0	2/0	2/0	2/0	2/4	1/9	1/7	
Dunfermline	2/0½	2/0½	2/0	2/0	2/0½	2/0½	—	1/7½	
Duns	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/0	
Edinburgh	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	—	1/7½	
Falkirk	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	—	1/7½	
Fort William	1/11½	1/11½	1/11½	1/11½	1/11½	1/11½	—	1/5	
Galashiels	1/11½	1/11½	1/11½	1/11½	1/11½	1/11½	—	—	
Glasgow	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	2/1	1/7½	
Greenock	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	1/9	1/4½ to 1/7½	
Hamilton	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	1/9	1/7½	
Hawick	1/10½	1/10½	1/10½	1/10½	1/10½	1/10½	1/8	1/3½	
Helensburgh	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	—	1/7½	
Inverness	1/11½	—	1/11	1/11	1/11½	1/11	1/11	1/0 to 1/3†	
Kilmarnock	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	2/1	1/7	
Kirkcaldy	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	—	1/6½	
Kirkwall	1/9	1/9	1/9	1/9	1/9	1/9	—	1/2	
Lanark	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	—	1/7	
Motherwell	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	—	1/7½	
Perth	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	1/9	1/7½†	
Stirling	2/0	2/0	2/0½	2/0½	2/0½	2/0½	2/0½	1/6	
Stirlingshire (Eastern District)	2/0	2/0	2/0½	2/0½	2/0½	2/4	2/1	1/6	
Wishaw	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	—	1/7½	

* The information given in this table is copyright. The rates of wages in the various towns in England and Wales are given on page 205.

† Under unemployment relief scheme, 11d

✱FEBRUARY 22.—**Hackney, E.8.**—MAISONETTES.—Erection of 62 maisonettes for the Metropolitan Borough of Hackney. Borough Engineer and Surveyor's Office, Town Hall, Mare-street, Hackney, E.8. Deposit £1 1s.

FEBRUARY 22.—**Leicester.**—HOUSES.—Erection of 60 houses: Block 1, 28 houses; Block 2, 32 houses, for the City Corporation. Mr. E. George Mawbey, City Surveyor, Wyggeston House, Highcross-street, Leicester. Deposit £3 3s. per block.

FEBRUARY 23. — **Castleford.** — CLOAK ROOM.—Provision of new boarded partitions, lavatory basins, &c., in the formation of a new cloak-room at temporary school premises, St. John's Memorial Hall, Lock-lane, Allerton Bywater, Castleford, for the West Riding E.C. Education Department, County Hall, Wakefield.

FEBRUARY 28.—**Ramsgate.**—ALMSHOUSES. — Erection of 10 almshouses, for the T.C. Mr. E. Healey, architect, Turner-street, Ramsgate. Deposit £2 2s.

NO DATE.—**Leeds.**—BUNGALOW.—Erection of a bungalow at Scholes, near Leeds. Mr. W Broadbent, architect, 12, East-parade, Leeds.

NO DATE.—**Nottingham.**—ALTERATIONS.—Alterations and additions to Messrs. Stead & Simpson's premises, Angel-row. Messrs. Stockdale Harrison & Sons, architects 7 St. Martin's East Leicester.

FURNITURE, MATERIALS, etc.

FEBRUARY 4.—**Brentford.**—TAR AND IRON RAILINGS.—Supply of (1) 20,000 to 25,000 gallons of distilled tar and (2) 40 yards of iron railing for garden walls, for the U.D.C. Mr. W. J. W. Westlake, Surveyor, Clifden House, Boston-road, Brentford.

FEBRUARY 4.—**Buxton.**—MATERIALS.—Supply of road and other materials to the T.C. Mr. F. Langley, Borough Engineer, Town Hall, Buxton.

FEBRUARY 4.—**Glamorganshire.**—ROAD MATERIALS.—Supply of materials, for the main roads. Mr. G. A. Phillips, County Surveyor, County Hall, Cardiff.

FEBRUARY 4.—**Glamorganshire.**—TOOLS, &c.—Supply of tools and ironmongers' goods, for the C.C. Mr. Geo. F. Phillips, County Surveyor, Glamorgan County Hall, Cardiff.

FEBRUARY 4.—**Manchester.**—PAINTERS' MATERIALS.—Supply to the Board of Guardians of painting materials. Mr. Hargreaves, Superintendent of Works, Union Offices, All Saints', Manchester.

FEBRUARY 4.—**Mitcham.** — MATERIALS.—Supply of road and other materials, to the U.D.C. Surveyor, Broadway House, Lower Mitcham.

FEBRUARY 5.—**Warrington.**—MATERIALS.—Supply of road and other materials to the T.C. Borough Engineer, Town Hall, Warrington.

FEBRUARY 6.—**Bradford.**—FURNITURE.—Supply to the Public Health Committee of hospital furniture for Baguley Sanatorium. City Architect, Town Hall, Manchester. Deposit 10s. 6d.

FEBRUARY 6.—**Camberwell.**—ROAD MATERIALS.—Supply to the B.C. of (1) 2,200 tons specially dressed granite setts; (2) 550 tons of Aberdeen granite setts; also 600,000 creosoted deal wood paving blocks. Mr. Frederick J. Slater, Borough Engineer, Town Hall, Camberwell, S.E.5.

FEBRUARY 6.—**Headington.**—GRANITE.—Supply to R.D.C. of granite and chippings. Mr. A. Walker, Surveyor, Headington, Oxfordshire.

FEBRUARY 6.—**Manchester.**—FURNITURE.—Supply of hospital furniture for Baguley Sanatorium, for the Public Health Committee. City Architect, Manchester. Deposit 10s. 6d.

FEBRUARY 6.—**St. Marylebone.**—MATERIALS.—Supply of road and other materials to the Works Dept. of the B.C. Mr. J. Paget Waddington, Borough Engineer, Town Hall, Marylebone-road, N.W.1.

FEBRUARY 6.—**Southampton.**—GRANITE. — Supply of 3,000 tons of broken granite to the T.C Borough Engineer, Town Hall, Southampton.

FEBRUARY 6.—**Stanley.**—ROAD MATERIALS.—Supply to the U.D.C. of road materials. Mr. John Geo. Ridley, Clerk, Stanley, S.O., Co. Durham.

FEBRUARY 6.—**Sunbury-on-Thames.**—TAR.—Supply of about 8,000 gallons of refined coal tar to the U.D.C. Mr. Harold F. Coales, Surveyor, Council Offices, Sunbury-on-Thames.

FEBRUARY 6.—**Sutton-in-Ashfield.**—ROAD MATERIALS.—Supply of tarmacadam and broken slag, to the U.D.C. Mr. Walter Burn, Surveyor, Outram-street, Sutton-in-Ashfield.

FEBRUARY 6.—**Warrington.**—MATERIALS.—Supply of materials to the Cleansing Department of the T.C. Cleansing Supt., Town Hall, Warrington.

FEBRUARY 7.—**Buckingham.**—ROAD MATERIALS.—Supply of road material to the Bucks C.C. Mr. F. L. Reynolds, Surveyor, County Offices, Buckingham.

FEBRUARY 7.—**Cheshunt.**—MATERIALS.—Supply of road and other materials to the U.D.C. Mr. J. E. Sharpe, Surveyor, Manor House, Cheshunt, Herts.

FEBRUARY 8.—**Belfast.**—STORES.—Supply to the Belfast and County Down Railway Co., of stores. Mr. H. E. Mellor, Secretary, Queen's Quay Terminus, Belfast.

FEBRUARY 8.—**Bradford.**—MATERIALS.—Supply of road metal, cement, pitch, oil and tar, cast-iron gullies, &c., glazed earthenware, &c. Mr. F. Marsden, City Engineer, Town Hall, Bradford.

FEBRUARY 8.—**Middlesex.**—ROAD MATERIAL.—Supply of granite, tarred slag and dry slag, to the C.C. Mr. A. Dryland, Engineer, Middlesex Guildhall, Westminster, S.W.1.

FEBRUARY 8.—**Warrington.**—FURNITURE.—Supply of school furniture, for the T.C. Mr. J. Moore Murray, Secretary, Education Office, Warrington.

FEBRUARY 9.—**Belfast.**—RAILWAY STORES.—Supply of all kinds of stores to the Midland Railway Co. (Ireland). Mr. Ellis, Stores Superintendent, York-road Station, Belfast

FEBRUARY 9.—**Lincolnshire.**—ROAD MATERIALS, &c.—Supply of road materials and carrying out of steam rolling and tar spraying, for the C.C. Mr. A. G. Bradshaw, County Surveyor Lincoln.

FEBRUARY 9.—**Stepney.**—MATERIALS.—Supply of road and other materials to the B.C. Mr. B. J. Belsher, Borough Engineer, Municipal Offices, Raine-street, Old Gravel-lane, E.1.

FEBRUARY 11.—**Cuckfield.**—MATERIALS.—Supply of road materials to the U.D.C. Mr. H. L. Richardson, Council Buildings, Haywards Heath.

FEBRUARY 11.—**Reigate.**—MATERIALS.—Supply of road materials and tools to the R.D.C. Mr. Arthur J. Head, Surveyor, 48, High-street, Reigate, Surrey.

FEBRUARY 13.—**Cramlington.**—ROAD MATERIALS.—Supply of road materials, &c., to the U.D.C. Mr. Wm. J. Coulson, Surveyor, Council Office, Cramlington.

FEBRUARY 13.—**Finsbury.**—MATERIALS.—Supply of road and other materials to the B.C. Borough Surveyor, Town Hall, Rosebery-avenue, E.C.

FEBRUARY 13.—**Hendon.**—MATERIALS.—Supply of road and other materials to the U.D.C. Mr. A. L. Knight, Surveyor, Town Hall, Hendon, N.W.4.

FEBRUARY 13.—**Kensington.** — MATERIALS, &c.—Supply of materials, &c., for six or twelve months commencing April 1st, 1922, for the Royal Borough of Kensington. Mr. Wm. Chambers Leete, Town Clerk, Town Hall, Kensington, W.8.

FEBRUARY 13.—**London.**—TOOLS.—Supply of tools for various trades. Controller of Supplies, H.M. Office of Works, &c., King Charles-street, S.W.1.

FEBRUARY 13.—**Wangford.**—MATERIALS.—Supply of road materials to the R.D.C. Mr. S. W. Rix, Clerk, Beccles.

FEBRUARY 14.—**Manchester.**—STORES.—Supply of various stores required by the Tramways Dept. J. M. McElroy, General Manager, 55, Piccadilly, Manchester.

FEBRUARY 14.—**Southall-Norwood.**—MATERIALS.—Supply of road and other materials to the U.D.C. Mr. J. B. Thomson, Surveyor, Town Hall, Southall.

FEBRUARY 14.—**Wakefield.**—ROAD MATERIALS, &c.—Road materials, tools and implements, for the West Riding C.C. Mr. H. R. Hepworth, County Surveyor, County Hall, Wakefield.

FEBRUARY 15.—**Bury St. Edmund's.**—MATERIALS.—Supply to the West Suffolk C.C. of road materials. Mr. W. L. Jenkins, County Surveyor, Shire Hall, Bury St. Edmund's.

FEBRUARY 15.—**Leeds.**—VARIOUS GOODS.—Supply to the Corporation Cemeteries of (1) stone flags, (2) gravestones; and (3) grass boards, shoulder boards, &c. Mr. W. T Lancashire, City Engineer, Municipal Buildings, Leeds.

FEBRUARY 15.—**Long Sutton.**—ROAD MATERIAL.—Supply of road material to the U.D.C. Mr. Charles M. Bowser, Clerk, Long Sutton, Lincolnshire.

FEBRUARY 16.—**Islington.**—STORES.—Supply to the Electricity Department of the B.C. of electrical and engineer's stores for one year. Electrical Engineer, 50, Eden-grove, Holloway, N.

FEBRUARY 18. — **Bedford.** — ROAD MATERIALS. — Supply to the C.C. of road materials and cartage. County Surveyor, Shire Hall, Bedford.

FEBRUARY 18.—**Chester.**—MATERIALS.—Supply to the Cheshire County Council of granite macadam and chippings, tarred material, tar compounds, tar spraying, steam rolling, &c. Mr. W. Holland, County Surveyor, The Castle, Chester.

FEBRUARY 18.—**Stafford.**—MATERIALS.—Supply of stores and materials to the T.C. Mr W. Plant, Borough Engineer, Borough Hall, Stafford.

FEBRUARY 20. — **St. Marylebone.** — MATERIALS.—Supply of materials to Highways Department. Highways Engineer, Town Hall, Marylebone-road, N.W.1.

FEBRUARY 20.—**Waltham.**—MATERIALS.—Supply to the U.D.C. of granite, flints, gravel, hoggin, ballast and sand, tar-macadam, and tar-spraying. Mr. W. C. Holloway, Surveyor, Town Hall, Waltham Abbey.

FEBRUARY 21.—**Norwich.**—MATERIALS.—Supply to the Norfolk C.C. of granite, slag, and tarred macadam. Mr. W. W. Gladwell, County Surveyor, The Shirehouse, Norwich.

FEBRUARY 22.—**Hammersmith.**—STORES.—Supply of stores to the Electricity Department of the B.C. Mr. G. G. Bell, Borough Electrical Engineer, 85, Fulham Palace-road, W.1.

✱FEBRUARY 23.—**London, E.C.1.**—STORES.—Supply of stores, &c., for the periods of three, six and twelve months, commencing April 1, 1922, for the Metropolitan Water Board. Chief Engineer, New River Head, 173, Rosebery-avenue, E.C.1.

MARCH 15.—**Hampstead.**—MATERIALS.—Supply of electrical engineer's stores to the B.C. Mr. A. P. Johnson, Town Clerk, Town Hall, Haverstock-hill, N.W.

ENGINEERING, IRON AND STEEL.

FEBRUARY 4.— **Dunfermline.**— PIPES. — Supplying about three miles of cast-iron pipes, chiefly 15 ins. in diameter, together with sundry pipes of smaller sizes, for the T.C. Mr. R. Muir Morton, Burgh Engineer, Dunfermline.

FEBRUARY 4.—**Loch Katrine.**—ROADS AND BRIDGES.—Alteration of the road along part of the north shore of Loch Katrine, near Trossachs, and for erecting five new bridges with ironwork complete, for the Glasgow Waterworks Department. Mr. J. R. Sutherland, Engineer to the Water Department, 45, John-street, Glasgow. Deposit £2 2s.

FEBRUARY 4.—**Southampton.**—PUMPS.—Dismantling existing pumps and supplying and erecting three new 18 in. centrifugal pumps at the Corporation Wharf, Chapel. Borough Engineer's Office, Southampton. Deposit £1 1s.

FEBRUARY 6.—**Bethnal Green.**—HOT WATER SUPPLY.—Installation of a central hot water supply at the Hospital, Cambridge-road, E.2, of the Board of Guardians. Mr. C. Faulkner Jones, Clerk, Administrative Offices, Bishop's-road, Bethnal Green, E.2. Deposit £3.

FEBRUARY 6. — **Camberwell.** — TELEPHONES.—For maintenance of private telephones and electric bells at public buildings of the B.C. Borough Engineer, Town Hall, Camberwell.

FEBRUARY 6.—**Glasgow.**—ELECTRIC INSTALLATION.—Electric lighting installation of the Mosspark Housing scheme, for the T.C. Mr. R. B. Mitchell, Electrical Engineer, 75, Waterloo-street, Glasgow.

FEBRUARY 6.—**London.**—TUBES.—Supply to H.M. Office of Works of steam tubes and fittings. Controller of Supplies, H.M. Office of Works, &c., King Charles-street, Westminster, S.W.

FEBRUARY 6.—**Wincanton.**—PUMPING PLANT.—Supply and erection of pumping plant in connection with Templecombe water supply. Messrs. A. P. I. Cotterell & Edson, of 17, Old Queen-street, Westminster, S.W.1. Deposit £2 2s.

FEBRUARY 7.—**London.**—BOILERS, &c.—Supply to the High Commissioner for India of vertical boilers, laminated springs and steel tyres. Director-General, India Store Dept., Belvedere-road, S.E.

FEBRUARY 7.—**New Jersey.** — TUNNELS.—Construction of two cast-iron tunnels under the Hudson River from New York to Jersey City. Department of Overseas Trade, 35, Old Queen-street, S.W.

FEBRUARY 7.—**St. Helens.**—RE-SHEETING GASHOLDER.—For the re-sheeting of a two-lift gasholder, and other works, for the T.C. Gas Engineer, Gas Works, St. Helens.

FEBRUARY 8.—**Burton-on-Trent.**—ELECTRICAL INSTALLATION.—Installing of electric light at the Hospital, Poor Law Institution, Burton-on-Trent. Mr. H. S. Askew, Clerk, Union Offices, Burton-on-Trent.

FEBRUARY 8.—**Manchester.**—PIPES.—Supply of about 245 tons of cast-iron pipes, 4 in. and 12 in. in diameter, for the Gas Dept. Mr. Godfrey William Kaye, Secretary, Gas Department, Town Hall, Manchester.

FEBRUARY 8.—**Truro.**—DREDGING.—For dredging mud alongside the quays and at other parts of the upper portions of the river and its disposal on land in process of reclamation, for the T.C. Mr. F. A. Barnes, Surveyor, Municipal Buildings, Truro.

FEBRUARY 9.—**Manchester.**—AQUEDUCT. —Laying and jointing of 54-inch welded steel and other pipes, the fixing of valves and ironwork, the construction of subways under railways, &c., connected with the fourth pipe line from Thirlmere to Manchester, as follows: (*a*) Ambleside to South of Kendal (about 8½ miles); (*b*) Kirkby Lonsdale to Lancaster (about 8½ miles); (*c*) South of Lancaster to River Ribble (about 4½ miles) (*d*) River Ribble to Horwich (about 6½ miles). Secretary, Waterworks Offices, Town Hall, Manchester. Deposit, £5 5s. each contract.

FEBRUARY 10.—**Denmark.**—RAILWAY MATERIALS.—Supply to the Danish State Railways of 831 3 tons of fish-plate bolts, rail spikes, clips, and locking washers. 1, Banekontor, Gl. Kongevej, 1, Copenhagen B. Charge 10 Danish crowns.

FEBRUARY 10.—**Johannesburg.**—WATER METERS.—Supply to the T.C. of 1,200 ¾ in. meters. Dept. of Overseas Trade, 35, Old Queen-street, S.W.

FEBRUARY 10.—**Leeds.**—ELECTRIC FITTINGS.—Supply of electrical fittings to the T.C. Mr. W. T. Lancashire, City Engineer, Municipal Buildings, Leeds.

FEBRUARY 10.—**Leeds.**—PIPES.—Supply of sewer ironwork and galvanised iron dirt boxes to the T.C. Mr. W. T. Lancashire, City Engineer, Municipal Buildings, Leeds.

FEBRUARY 13.—**Dublin.**—STEELWORK.—Supply of about 100 tons of steelwork for ten short-span bridges, to the Great Southern & Western Railway Co. Mr. J. F. Sides, Chief Engineer, Great Southern & Western Railway, Inchicore, Dublin. Deposit £2 2s.

FEBRUARY 13.—**Edinburgh.**—FOUNDATIONS, &c.—Conveyor and siding foundations and coal bunker at Portobello Power Station, for the T.C. Engineer, Dewar-place, Edinburgh.

FEBRUARY 13.—**London.**—ROADS.—Supply of 2,500 tons and, alternatively, of about 45,00 tons of standard steel girder tramway track rails, with fishplates therefor, for the L.C.C. Chief Engineer, Gloucester House, 19, Charing Cross-road, W.C.2. Deposit £2.

FEBRUARY 13.—**Middleton.**—TAR-SPRAYING MACHINE—Supply to the T.C. of (1) one horse-drawn tar-spraying machine; and (2) 20 street sand bins. Mr. J. P. Walmsley, Town Clerk, Town Hall, Middleton, Lancashire.

FEBRUARY 13.—**Wakefield.**—HEATING.—Alteration to existing heating installation at the Registry of Deeds, Kirkgate, Wakefield. West Riding Architect, County Hall, Wakefield.

FEBRUARY 14.—**Durham.**—PIPES.—Supply to the Durham County Water Board of 5,500 tons of cast-iron pipes. Messrs. T & C. Hawksley, engineers, 62, Broadway, Westminster, S.W. 1. Deposit £3 3s.

FEBRUARY 14.—**Wallasey.**—GAS PLANT.—Supply of gas plant to the T.C. Mr. J. H. Crowther, Gas Works Offices, Limekiln-lane, Wallasey. Deposit £2 2s.

FEBRUARY 15.—**Australia.**—PIG-IRON BREAKER.—Supply to the Victorian Railway Commissioners of hydraulic pig-iron breaker, including tools, gears, accessories and spares (for Bendigo workshops). Dept. of Overseas Trade, 35, Old Queen-street, S.W.

FEBRUARY 15.—**Australia.**—TELEPHONE APPARATUS.—Supply of telephone apparatus and parts to the Deputy Postmaster-General, Brisbane. Dept. of Overseas Trade, 35, Old Queen-street, S.W.

FEBRUARY 15.—**Bulgaria.**—GRAIN ELEVATOR, &c.—Construction at the port of Varne of a concrete grain elevator (capacity, 30,000 tons) and drying shed. Department of Overseas Trade, 35, Old Queen-street, S.W.

FEBRUARY 15.—**London.**—BOILERS.—Supply to the East Indian Railway Co. of Lancashire Boilers. Mr. G. E. Lillie, Secretary, Nicholas-lane, London, E.C.4. Charge £1 1s.

FEBRUARY 15.—**Sheerness.**—STEELWORK.—Supply of 10 tons of structural steel work to the U.D.C. Surveyor, Council Offices, Trinity-road, Sheerness.

FEBRUARY 16.—**Bulgaria.**—STEEL STRUCTURES.—Supply, erection and painting of 31 steel structures of various sections for bridges, &c. Department of Overseas Trade, 35, Old Queen-street, S.W.

FEBRUARY 16.—**South Africa.**—STEEL BARS, &c.—Supply to the Kamanassie Irrigation Board, Oudtshoorn, Cape Province, of (*a*) about 200 tons of plain round mild steel rods and bars for concrete reinforce-

ment; (*b*) Wrought-iron sluices and gratings, also cast-iron valves and manhole covers, &c. Dept. of Overseas Trade, 35, Old Queen-street, S.W.

FEBRUARY 17.—**Bradbury, &c.**—BRIDGES.—Renewal of three bridges at Bradbury, Crossgates, and Wressle, for the North-Eastern Railway Co. Mr. C. F. Bengough, Chief Engineer, York.

FEBRUARY 17.—**London.**—SPRINGS.—Supply to the Bombay, Baroda & Central India Railway Co. of helical springs. Mr. S. G. S. Young, Secretary, 91, Petty France, Westminster, S.W.1. Charge £1.

FEBRUARY 18.—**Bradford.**—TRAMRAILS.—Supply of 650 tons of steel girder tramrails. Mr. F. Marsden, City Engineer, Town Hall, Bradford.

FEBRUARY 20.—**Chester.**—SUSPENSION BRIDGE.—Taking down and removal of the existing suspension bridge and the erection of a new wire-rope suspension bridge at Queen's Park, for the T.C. Mr. Charles Greenwood, City Engineer, Town Hall, Chester. Deposit £2 2s.

FEBRUARY 21.—**Argentine.**—PLANT.—**Supply to the Argentine Ministry of Public Works of steam cranes, concrete mixers, tip wagons, machine tools, steam hammer, excavator, &c. Department of Overseas Trade, 35, Old Queen-street, S.W.**

FEBRUARY 22.—**Ashton-under-Lyne.**—PIPES, &C.—For circulating water pipes and valves and exhaust steam pipe for the Electricity Committee of the T.C. Borough Electrical Engineer, Wellington-road, Ashton-under-Lyne. Deposit £1 1s.

FEBRUARY 22.—**East Grinstead.**—ELECTRICAL PLANT.—Supply to the U.D.C. of electrical plant and mains, including street lamps and travelling crane. Mr. E. P. Whitley Hughes, Clerk, 102, London-road, East Grinstead.

FEBRUARY 26.—**Belgium.**—PORT.—Construction of fishing port at Ostend. Department of Overseas Trade, 35, Old Queen-street, S.W.

MARCH 1.—**Costa Rica.**—WHARF.—Construction of reinforced concrete wharf for the Public Works Dept. of Overseas Trade, 35, Old Queen-street, S.W.

MARCH 3.—**Johannesburg.**—HEATING AND DRYING PLANT.—Supply and erection of combined power, heating and drying plant for abattoirs, for the Johannesburg T.C. Messrs. E. W. Carling & Co., agents, St. Dunstan's Buildings. St. Dunstan's Hill, London, E.C.3. Deposit £1 1s.

MARCH 6.—**South Africa.**—SHED.—Supply of whole of materials required for steel-framed building for new engine shed at Vryhard East, Natal. High Commissioner for Union of South Africa, Trafalgar-square, W.C.

MARCH 8.—**Australia.**—TRANSFORMERS.—Supply of 35 cabin transformers for power signalling to the Victorian Railway Commissioners. Dept. of Overseas Trade, 35, Old Queen-street, S.W.

MARCH 15.—**Australia.**—TELEPHONE OPERATOR.—Supply of telephone protective apparatus to the Deputy Postmaster-General, Brisbane. Dept. of Overseas Trade, 35, Old Queen-street, S.W.

MARCH 16.—**Calcutta.**—WATERWORKS.—(I to VI) Supply and laying in a prepared trench of 30 miles of riveted steel pipe in the following sizes: 60 in., 54 in., 51 in., 48 in., 42 in., 36 in., and 33 in. Messrs. St. George-Moore & La Trobe-Bateman, 91, Victoria-street Westminster, S.W.1. Deposit £5.

MARCH 29.—**Australia.**—BORING MACHINE.—Supply of one double spindle boring machine, including tools, gears, and accessories, for Newport workshops, for the Victoria Railway Commissioners. Dept. of Overseas Trade, 35, Old Queen-street, S.W.

APRIL 10.—**Siam.**—RAILWAY ACCESSORIES.—Supply of accessories for goods rolling stock, to the Siam State Railways. Messrs. C. P. Sandberg, 40, Grosvenor-gardens, London, S.W.1. Charge £2.

JUNE 19.—**Argentina.**—BRIDGES.—Supply and erection of suspension bridges for local authorities. Dept. of Overseas Trade 35, Old Queen-street, S.W.

OCTOBER 31.—**New South Wales.**—BRIDGE.—Construction of the superstructure and substructure of a cantilever bridge across Sydney Harbour from Dawes Point to Milson's Point, for the Government of New South Wales. Agent-General for New South Wales, Australia House, Strand, London, W.C.2.

ROAD, SANITARY, AND WATER WORKS.

FEBRUARY 4.—**Dunfermline.**—WATER MAIN.—Laying about three miles of cast-iron pipes, between Saline Craigluscar, for the T.C. Messrs. Crouch & Hogg, engineers, 31, Lynedoch-street, Glasgow. Deposit £2 2s.

FEBRUARY 4.—**Lancashire.**—ROADS.—Widening and improvement of the following main roads: Widnes and St. Helens main road; Eccleston and St. Helens main road; Clock Face main road, for the C.C. County Surveyor, County Offices, Preston.

FEBRUARY 4.—**Tadcaster.**—WATER MAIN.—Providing and laying about 3,240 yards of 3 in. cast-iron water pipes in the parish of Swillington, for the R.D.C. Mr. H. M. Driver, Surveyor, Garforth, nr. Leeds.

FEBRUARY 6.—**Camberwell.**—DUST REMOVAL.—For removal of street refuse, &c., for the B.C. Borough Engineer, Town Hall, Camberwell.

FEBRUARY 6.—**Cambridge.**—STEAM ROLLING.—For steam rolling during 1922, for the C.C. Mr. A. E. Peake, County Surveyor, Cambridge.

FEBRUARY 6.—**Stratford-on-Avon.**—WATER SUPPLY.—**For sinking borehole and supplying pumping plant, for the T.C. Mr. F. W. Jones, Borough Engineer, Stratford-on-Avon. Deposit £2 2s.**

FEBRUARY 8.—**Middleton.**—SEWER.—Sewering of Hartley-street, Middleton, for the T.C. Borough Engineer, Town Hall, Middleton.

FEBRUARY 8.—**Repton.**—WATER MAINS.—Laying 1,300 yards of 4 in. and 3 in. cast-iron water mains, for the R.D.C. Messrs. Wilcox & Raikes, engineers, 63, Temple-row, Birmingham. Deposit £2 2s.

FEBRUARY 8.—**Tutbury.**—WATER MAIN.—Laying 190 yards of 4 in. cast-iron water pipes, for the R.D.C. Messrs. Wilcox & Raikes, engineers, 63, Temple-row, Birmingham. Deposit £2 2s.

FEBRUARY 8.—**Yeovil.**—BOREHOLE.—Sinking a 10 in. borehole on the Corporation's farm at Cattistock. Mr. Alfred J. Price, Borough Surveyor, Municipal Buildings, Yeovil.

FEBRUARY 9.—**Oswestry.**—WATER MAIN.—Laying 2,300 yards of cast-iron water main in the village of Morda, for the R.D.C. Messrs. Berrington, Son & Watney, engineers, Prudential Chambers, Wolverhampton.

FEBRUARY 9.—**Oxford.**—TAR SPRAYING.—For tar spraying approximately 1,000,000 square yds. of roads during 1922, for the Oxfordshire C.C. Mr. A. E. Cockerton, County Surveyor, 8, New-road, Oxford.

FEBRUARY 10.—**Barry.**—ROADS.—Alternative tenders for tar macadam and reinforced concrete roads, &c., at the Witchill Estate, Cadoxton, for the U.D.C. Mr. E. R. Hinchsliff, Architect, Council Offices, Barry. Deposit £3 3s.

FEBRUARY 10.—**Hertfordshire.**—ROADS.—For surface-tarring approximately 2,000,000 square yards of main roads with refined tar, for the C.C. Lt.-Col. A. E. Prescott, County Surveyor, Hatfield.

FEBRUARY 10.—**Hertfordshire.**—STEAM ROLLING.—Hire of steam and petrol rollers for work on main roads during 1923. Lt.-Col. A. E. Prescott, County Surveyor, Hatfield.

FEBRUARY 11.—**Ayr.**—ROADWORK, &C.—Work required in forming permanent way, rail-laying, paving, roadwork, &c., of the doubling of the lines in Prestwick-road, Ayr, and the construction of the passing places in the Burgh of Prestwick, for the Ayr T.C. Mr. John Young, Tramway Engineer, Town Buildings, Ayr. Deposit, £3 3s.

FEBRUARY 11.—**Thorne.**—SANITARY.—Collection and disposal of nightsoil, emptying of cesspools, &c., for the R.D.C. Sanitary Inspector, Council Offices, Thorne.

FEBRUARY 11.—**Worsborough.**—ROADS.—Making up of the footpath on the Wakefield and Sheffield main road, for the U.D.C. Mr. T. Shield, Council's Surveyor, Saville House, Worsborough Bridge. Deposit, £1 1s.

FEBRUARY 13.—**France.**—SEWAGE WORKS.—**The Municipality of Lille has a project for land drainage and sewage works in the area of Basse-Deule, the outlet of the town drainage system. United Kingdom firms who have executed such works are invited to tender. They should forward certificates, giving particulars of the conditions under which such works were executed, to the "Directeur des Travaux Municipaux, à la Maire de Lille," who will visé the documents and forward them to the adjudicating committee of the Municipality. Copies of the specification and plans have been applied for and will be available for inspection as soon as received in the Department of Overseas Trade (Room 84), 35, Old Queen-street, London, S.W.1.**

FEBRUARY 13.—**Gravesend.**—MAIN DRAINAGE.—Constructing a new system of main drainage through a portion of the town, for the T.C. Messrs. Northcroft, Neighbour & Nicholson, quantity surveyors, 55-56, Chancery-lane, W.C.2. Deposit £5.

FEBRUARY 13.—**Hayes.**—ROADS, &C.—Construction of roads, footpaths, sewers, &c., in connection with housing, for the U.D.C. Mr. D. C. Fidler, Surveyor, Council Offices, Hayes, Middlesex. Deposit £2 2s.

FEBRUARY 13.—**London.**—REMOVAL OF DEPOSIT.—For removal and disposal of sewer deposit and other material in connection with main drainage, for the L.C.C. Chief Engineer, 19, Charing Cross-road, S.W. Deposit, £1.

FEBRUARY 13.—**North Riding of Yorkshire.**—CONCRETING.—For concreting the school playgrounds at the following schools:—(1) Thornaby Queen-street, (2) Thornaby Westbury-street, (3) South Eston Girls, (4) Grangetown Infants. Mr. J. C. Wrigley, Education Offices, Northallerton.

FEBRUARY 13.—**Scunthorpe.**—SEWER.—Construction of a 30-in. reinforced concrete sewer in Berkeley-street, Crosby, for the U.D.C. Mr. Alexander M. Cobban, Engineer, County Buildings, Scunthorpe.

FEBRUARY 14.—**London.**—REPAIRS TO WATER MAINS.—For laying, repairs and alterations to water mains for periods of three, six or twelve months, for the Metropolitan Water Board. Chief Engineer, 173, Rosebery-avenue, E.C.

FEBRUARY 14.—**Maldens and Coombe.**—ROADS.—(A) Making-up of Back Coombe Parade, (B) Kingston-road improvement. Mr. Reginald H. Jeffes, Surveyor, Council Offices, New Malden, Surrey. Deposit £2 2s.

FEBRUARY 14.—**Wellington (Salop).**—WATER SUPPLY,—(1) Laying two miles of 7 in. pumping main, &c., (2) enlargement of pumping station, (3) supply and fixing of standpipe, suction gas engine plant, &c., for the U.D.C. Mr. G. H. Connor, Surveyor, Council Offices, Wellington. Deposit £2 2s.

FEBRUARY 15.—**Glossop.**—SEWERAGE WORKS.—For alteration and extension of sewage outfall works for the T.C. Messrs. Brady & Partington, Town Hall, Chapel-en-le-Frith. Deposit £5.

FEBRUARY 16.—**West Ham.**—SEWER.—Construction of about 2,300 lineal yards of concrete tube and brick sewer, 3 ft. diameter, at Silvertown, E., for the B.C. Borough Engineer, Town Hall, West Ham, E.15. Deposit £2.

✱FEBRUARY 17.—**Manchester.**—ROADS.—Construction of new roads, &c., at Hollinwood, Manchester, for The Commissioners of H.M. Office of Works. Contracts Branch, King Charles street, London, S.W.1. Deposit £1 1s.

FEBRUARY 18.—**Carlisle.**—TAR SPRAYING.—For tar spraying approximately 600,000 sq. yds. of main roads, for the Cumberland C.C. Mr. W. H. Butler. County Surveyor, Carlisle.

FEBRUARY 21.—**London.**—WORKS AND REPAIRS.—For general works and repairs, including jobbing work (exclusive of mechanical work), to sewers, engine houses, buildings, subways, &c., under supervision of the Chief Engineer of the L.C.C. for one year: (*a*) for north of Thames, and (*b*) for south of Thames. Chief Engineer, 19, Charing Cross-road, S.W. Deposit, £3.

✱FEBRUARY 27.—**Wallington.**—ROADS AND FOOTPATHS.—Completion of roads and formation of footpaths on Demesne Estate for Beddington and Wallington U.D.C. Mr. S. F. R. Carter, A.M.I.C.E., Council Offices, Wallington, Surrey. Deposit £1 1s.

MARCH 2.—**Failsworth.**—ROADS.—Construction of about half-a-mile of main arterial road, of 100 ft. in width, between Oldham-road and Moston Brook, for the U.D.C. Messrs. Charles J. Lomax & Son, engineers, 37, Cross-street, Manchester. Deposit, £3 3s.

Competitions.

(*See Competition News, page* 178.)

Auction Sales, Tenders, etc.

✱FEBRUARY 9.—**Fulham, S.W.**—Messrs. Veryard & Yates will sell, without reserve, at Hurlingham Wharf, Carnwarth-road, Fulham, timber from demolition of grand stands, Hurlingham Polo Ground, Auctioneers: 365, Norwood-road, S.E. 27.

✱FEBRUARY 14.—**Cromer.**—Messrs. Joseph Hibbard & Sons will sell, without reserve, by order of Messrs. Osborne & Co., at the Felbrigg Estate (two miles from Cromer, on the Cromer-Holt road) stock of timber and plant. Auctioneers, 15, Newington-green, Islington, London, N.16.

✱FEBRUARY 14.—**Isleworth.**—Messrs. Debenham, Tewson & Chinnocks will sell riverside premises known as "Lion Wharf," Isleworth river frontage. Auctioneers, 80, Cheapside, E.C.2, and 13, Park-place, S.W.1.

✱FEBRUARY 14.—**Worthing.**—Messrs. Debenham, Tewson & Chinnocks will sell, at the Mart, freehold hotel property, situate at West Worthing. Auctioneers, 80, Cheapside, E.C.2.

FEBRUARY 15.—**Acton.**—**Messrs. Daniel Smith, Oakley & Garrard will offer for sale at the London Auction Mart (Room E.), 155, Queen Victoria-street, E.C.2, freehold building site about 36,000 feet super forming part of The Elms Estate. Auctioneers, 4 and 5, Charles-street, St. James's-square, London, S.W.1.**

✱FEBRUARY 15.—**Hounslow.**—Messrs. J. T. Skelding & Co. will sell, at St. Alban's Works, Staines-road, Hounslow, new and second-hand surplus of builder's and contractor's plant and stores, including upwards of 125 standards of new timber. Auctioneers, 48, Gresham-street, Guildhall, E.C.2.

✱FEBRUARY 28.—**London, E.C.**—Messrs. Fuller, Horsey & Co. will sell by order of the Port of London Authority in the Merchants' Hall, Baltic Exchange, St. Mary Axe, Contractor's Plant, including cranes, concrete mixers, &c., &c. Auctioneers, 11, Billiter-square, E.C. 3.

Public Appointments.

FEBRUARY 4. — **Winchester.**—Assistant Clerk of Works required by the City Council. Town Clerk, Guildhall, Winchester.

FEBRUARY 6.—**Gravesend.**—Outside or residential engineer required by the Borough for their main drainage scheme. Mr. H. H. Brown, Town Clerk, Gravesend.

✱FEBRUARY 9.—**Chester.**—Temporary Architectural Assistant required by Cheshire C.C. Mr. F. Anstead Browne, L.R.I.B.A., Deputy County Architect, 16, Nicholas-street, Chester.

✱NO DATE.—**Bermuda.**—Masons (two) and carpenters (two) required by the Government of Bermuda for service in the Public Works Department for a period of three years' service, with possible extension. Crown Agents for the Colonies, 4, Millbank.

PATENTS.

APPLICATIONS PUBLISHED.*

169,807.—H. Wade (Bombrini Parodi-Delfino): Manufacture of cement mixtures.

169,808.—H. Wade (Bombrini Parodi-Delfino): Manufacture of cements.

169,821.—T. S. Pipe: Hinges for doors and windows.

147,227.—Vaile-Kimes Co.: Pumping apparatus for use in connection with domestic water-supply systems.

147,752.—W. P. Thompson: Making white lead.

148,335.—Press-U Stanzwerk Neviges Commanditges Lohe and Hacklander: Padlocks.

148,347.—Case Making Machine Co., Ltd.: Appliance to be used in the making of boxes, cases, crates, &c.

149,266.—J. Store: Casting objects of concrete or the like below the water level.

169,850.—J. W. Laing: Form for use in constructing concrete walls.

169,865.—E. A. Dodd: Tables.

169,872.—E. N. Harvey: Means for closing the collapsible gates of lifts.

169,874.—H. Abraham: Roofing elements.

169,878.—W. Greenwood and T. Greenwood: Flushing systems for lavatories and other places.

149,993.—L. Leiner: Windows for cellars, stables, and so forth.

169,886.—S. Cooper and J. V. Kaye: Locks.

169,898.—Thomson & Co. (Kinning Park), Ltd., and R. A. Struthers: Pulley-block.

*All these applications are now in the stage in which opposition to the grant of Patents upon them may be made.

PRICES CURRENT OF MATERIALS.*

[Owing to the exceptional circumstances which prevail at the present time, prices of materials should be confirmed by inquiry. Since our last issue several prices have been revised.—Ed.]

BRICKS, &c.

Per 1,000 Alongside, in River Thames up to London Bridge.

	£ s. d.
Best Stocks	4 18 0

Per 1000, Delivered at London Goods Stations.

	£ s. d.		£ s. d.
Flettons	3 5 0	Best Blue Pressed Staffs.	10 11 6
Do. grooved for plaster	3 7 0	Do. Bullnose	11 1 6
Do. Bullnose	4 0 0	Blue Wire Cuts	8 11 6
Best Stourbridge Fire bricks:—			
2½ in.	11 18 0	3 in.	14 2 0

GLAZED BRICKS—

Best White, Ivory, and Salt Glazed Stretchers	26 0 0	D'ble Str'tch'rs	34 10 0
		D'ble Headers	31 10 0
		One Side and two Ends	35 10 0
Headers	25 10 0	Two Sides and one End	36 10 0
Quoins, Bullnose and 4½ in. Splays			
Flats	32 10 0	Squints	34 0 0

Second Quality, £1 per 1,000 less than best. Cream and buff, £2 extra over white. Other colours, Hard Glaze, £5 10s. extra over white.

	s. d.		
Thames Ballast	14 0	per yard,	delivered 2 miles radius Paddington.
Pit Sand	17 0	" "	
Thames Sand	19 0	" "	
Best Washed Sand	19 0	" "	
¾ in. Shingle for Ferro-Concrete	19 0	" "	
¼ in. " "	20 0	" "	

Per ton delivered in London area in full van loads.

	£ s. d.	£ s. d.
Best Portland Cement. British Standard Specification Test	3 10 6	3 16 0

63/6 alongside at Vauxhall in 80-ton lots.

Ferrocrete per ton extra on above	10 0

NOTE.—The sacks are charged at 2s. 3d. each and credited at 2s. each if returned in good condition within three months, carriage paid.

Best Ground Blue Lias Lime 2 8 0 at rly. depot. Grey Stone Lime 65s. 0d. per ton delivered in City and Central districts.

Stourbridge Fireclay in s'cks 37s. 8d. per ton at rly. dpt.

STONE.

	s. d.
BATH STONE—delivered in railway trucks at Westbourne Park, Paddington, G.W.R., or South Lambeth, G.W.R., per ft. cube	3 2½
Do. do. delivered in railway trucks at Nine Elms, L. & S.W.R., per ft. cube	3 5½
Do. do. delivered on road wagons at Nine Elms Depot	3 6½
PORTLAND STONE—	
Brown Whitbed, in random blocks of 20 ft. average, delivered in railway trucks at Nine Elms, L.& S.W.R., South Lambeth Station, G.W.R., and Westbourne Park, Paddington, G.W.R., per ft. cube	4 11½
Do. do. delivered on road wagons at above stations, per ft. cube	5 0½
White basebed, 3d. per ft. cube extra.	
NOTE.—½d. ft. cube extra for every foot over 20 ft. *average*, and ½d. beyond 30 ft.	
YORK STONE, BLUE—*Robin Hood Quality.*	
Delivered at any Goods Station London.	s. d.
6 in. sawn two sides landings to sizes (under 30 ft. super.) Per Ft. Super	7 4½
6 in. rubbed two sides, ditto "	8 0½
3 in. sawn two sides slabs (random sizes) "	3 3
2 in. to 2½ in. sawn one side slabs (random sizes) "	2 1
1½ in. to 2 in. ditto, ditto "	1 9
HARD YORK—	
Delivered at any Goods Station London.	
Scappled random blocks Per Ft. Cube	8 0
6 in. sawn two sides landing to sizes (under 40 ft. super.) Per Ft. Super	7 0
6 in. sawn two sides ditto "	8 0
4 in. sawn two sides slabs (random sizes) "	3 11
3 in. ditto, ditto "	3 1
2 in. self-faced random flags Per Yard Super	10 6

WOOD.

GOOD BUILDING DEAL.

Inches	£ s.	
4 × 11	36 0	per standard
4 × 9	35 0	"
4 × 8	30 0	"
4 × 7	30 0	"
3 × 8	30 0	"
3 × 7	25 0	"
2½ × 7	25 0	"
3 × 6	25 0	"
3 × 11	34 0	"
2 × 11	32 0	"
3 × 9	30 0	"
2½ × 9	30 0	"
3 × 4½	20 10	"
3 × 4	20 10	"

PLANED BOARDS.

1 × 11	45 0	"
1 × 9	40 0	"

PLAIN EDGE FLOORING.

Inches		
¾	20/-	per square
¾	22/6	"
1	25/-	"
1¼	30/-	"
1½	37/6	"

TONGUED AND GROOVED FLOORING.

Inches		
1	25/-	per square
1¼	30/-	"
1½	37/6	"

WOOD (*Continued*).

MATCHINGS (BEST).

Inches	
¾	17/6 per square
¾	20/- "
1	25/- "

Inches	BATTENS.	s. d.
¾ × 2		3 0 per 100 ft.

SAWN LATHS.

Per bundle	0 4 0

Dry Wainscot Oak, per ft. super, as inch	0 2 6	to	0 3 0		
¼ in. do. do.	0 1 10½	to	0 2 6		
Dry Mahogany—Honduras, Tabasco, African, per ft. super, as inch	0 2 3	to	0 3 0		
Cuba Mahogany	0 3 6	to	0 4 0		
Teak (Rangoon, Moulmein or Java), per load	52 10 0	to	55 0 0		
American Whitewood planks, per ft. cube	0 16 0	to	0 18 0		
Best Scotch Glue, per cwt.	9 5 0	to	—		
Liquid Glue, per cwt.	5 3 0	to	6 10 0		

SLATES.

1st quality slates from Bangor or Portmadoc in truck load delivered London area. Per 1,000 of 1,200.

		£ s. d.
Best Blue Bangor Slates,	24 by 12	46 10 9
" "	22 by 12	42 5 0
First quality " "	22 by 11	39 0 0
" "	20 by 12	37 2 6
Best Blue Portmadoc	20 by 10	31 15 0
" "	18 by 10	26 5 0
First quality "	18 by 9	23 2 6
" "	16 by 10	22 0 0
" "	16 by 8	17 2 6

TILES.

	Per 1,000 f.o.r. London. £ s. d.
Best machine-made tiles from Broseley or Staffordshire district	7 0 0
Ditto hand-made ditto	7 15 0
Ornamental ditto	8 0 0
Hip and valley tiles (per dozen)	0 12 0

METALS.

JOISTS, GIRDERS, &c., TO LONDON STATION PER TON—	£ s. d.
R. S. Joists, cut and fitted	14 10 0
Plain Compound Girders	16 10 0
" Stanchions	18 0 0
In Roof Work	22 0 0

WROUGHT IRON TUBES AND FITTINGS—
(Discount off List for lot of not less than £15 net value delivered direct from Works. 5 per cent. less above gross discounts, carriage forward if sent from London Stocks.)

	Tubes, (all sizes).	Fittings, Up to 2".	Fittings, Over 2".	Flanges, Up to 2".	Flanges, Over 2"
Gas	47½ %	45 %	50 %	60 %	65 %
Water	41½ %	40 %	45 %	55 %	60 %
Steam	35 %	35 %	40 %	50 %	55 %
Galv'd—					
Gas	32½ %	37½ %	42½ %	52½ %	57½ %
Water	25 %	32½ %	37½ %	47½ %	52½ %
Steam	17½ %	27½ %	32½ %	42½ %	47½ %

L.C.C. COATED SOIL PIPES—London Prices ex works.

	Pipe. s. d.	Bends, stock angles. s. d.	Branches, stock angles. s. d.
2 in. per yd. in 6fts plain	4 7	3 7	4 4
2½ in. "	5 6	3 11	5 5
3 in. "	6 6	4 4	6 6
3½ in. "	7 2	5 5	7 6
4 in. "	8 3	6 1	8 7

RAIN-WATER PIPES, &c.

	Pipe. s. d.	Bends, stock angles. s. d.	Branches, stock angles. s. d.
2 in. per yd. in 6fts. plain	2 11	2 3½	3 1½
2½ in. " "	3 3	2 8½	3 9
3 in. " "	3 10½	3 4	5 0
3½ in. " "	4 6½	3 11½	5 10
4 in. " "	5 2	4 9½	7 0

L.C.C. DRAIN PIPES.—9 ft. lengths. London Prices per yd.: 4 in., 6/3. .. 5 in., 7/10. .. 6 in., 9/6.

	Per ton in London. £ s. d.		£ s. d.
IRON—			
Common Bars	15 0 0	to	16 0 0
Staffordshire Crown Bars — good merchant quality	16 0 0	..	17 0 0
Staffordshire "Marked Bars"	19 10 0	..	20 10 0
Mild Steel Bars	13 10 0	..	14 10 0
Steel Bars. Ferro-Concrete quality, basis price	13 10 0	..	14 10 0
Hoop Iron, basis price	21 0 0	..	22 0 0
" " Galvanised	34 0 0	..	36 0 0
Soft Steel Sheets, Black—			
Ordinary sizes to 20 g.	17 0 0	..	18 0 0
" " " 24 g.	18 0 0	..	19 0 0
" " " 26 g.	19 10 0	..	21 10 0
Sheets Flat Best Soft Steel, C.R. & C.A. quality—			
Ordinary sizes, 6ft. by 2ft. to 3ft. to 20 g.	23 0 0	..	24 0 0
Ordinary sizes, 6ft. by 2ft. to 3ft. to 22 g. and 24 g.	24 0 0	..	25 0 0
Ordinary sizes, 6ft. by 2ft. to 3ft. to 26 g.	26 0 0	..	28 0 0
Flat and Galvanised Corrugated Sheets—			
Ordinary sizes, 6 ft. to 9ft. 20 g.	22 10 0	..	23 10 0
Ordinary sizes, 6ft. to 9ft. 22 g. and 24 g.	23 0 0	..	24 0 0
Ordinary sizes, 6ft. to 9ft. 26 g.	25 0 0	—	27 0 0

METALS (*Continued*).

	Per ton in London. £ s. d.		£ s. d.
Sheets Galvanised Flat, Best quality—			
Best Soft Steel Sheets, 6ft. by 2ft. to 3ft. to 20g. and thicker	27 0 0	..	28 0 0
Best Soft Steel Sheets, 22 g. and 24 g.	28 0 0	..	29 0 0
Best Soft Steel Sheets, 26 g.	30 0 0	..	31 0 0
Cut Nails, 3in. to 6in.	25 0 0	..	26 0 0
(under 3in. usual trade extras.)			

METAL WINDOWS—Standard sizes suitable for complete houses, including all fittings, painting two coats, and delivery to job, average price about 3s. per foot super.

LEAD, &c.

	Delivered in London. £ s. d.		
LEAD—Sheet, English, 4 lb. and up	35 0 0	—	—
Pipe in coils	35 10 0	..	—
Soil Pipe	38 0 0	..	—
Compo pipe	39 0 0	..	—

NOTE—Country delivery, 30s. per ton extra; lots under 5 cwt., 1s. 6d. per cwt. extra. Cut to sizes, 2s. cwt. extra.

Old lead, ex London area, at Mills per ton	21 0 0	..	—
Do., ex country, carriage forward per ton	22 0 0	—	—
COPPER—			
Strong Sheet per lb.	0 2 3	..	—
Thin " "	0 2 4	..	—
Copper nails "	0 2 3	..	—
Copper wire "	0 2 4	..	—
TIN—English Ingots "	0 1 9	..	—
SOLDER—Plumbers' "	0 0 10	..	—
Tinmen's "	0 1 0	..	—
Blowpipe "	0 1 3	..	—

GLASS.

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES AND IN SQUARES IN ORDINARY SIZES

	Per Ft.		Per Ft.
15 oz. fourths	4½d.	32 oz. fourths	9½d.
" thirds	5½d.	" thirds	11d.
21 " fourths	6½d.	Obscured Sheet, 15 oz.	7d.
" thirds	6½d.	21 "	9d.
26 " fourths	7½d.	Fluted and Enamelled 15 "	11d
" thirds	8½d.	21 "	1/2

Extra price according to size and substance for squares cut from stock.

ENGLISH ROLLED PLATE IN CRATES OF STOCK SIZES.

	Per Ft.
¼ Rolled plate	4½d.
⅛ Rough rolled	6d.
¼ Rough rolled	6½d.
Figured Rolled, Oxford Rolled, Baltic, Oceanic, Arctic, Stippolyte, and small and large Flemish white	7d.
Ditto, tinted	9½d.
Rolled Sheet	7d.
White Rolled Cathedral	5½
Tinted do.	7½d.

Cast Plate is same price as rough rolled.

PAINTS, &c.

		£ s. d.
Raw Linseed Oil	in pipes per gallon	0 3 5
" " "	in barrels "	0 3 6
" " "	in drums "	0 3 7
Boiled " "	in barrels "	0 3 10
" "	in drums "	0 4 0
Turpentine	in barrels "	0 6 5
"	in drums (10 gall.) "	0 6 8
Genuine Ground English White Lead, per ton (In not less than 5 cwt. casks.)		58 0 0
GENUINE WHITE LEAD PAINT— "Father Thames," "Nine Elms," "Park," "Supremus" and other best brands (in 14 lb. tins) not less than 5 cwt. lots	per ton delivered	77 5 0
Red Lead, Dry (packages extra)	per ton	41 0 0
Best Linseed Oil Putty	per cwt.	0 17 6
Filocol	per cwt.	0 15 0
Size. X D Quality	fkn.	0 4 6

VARNISHES, &c.

		Per gallon. £ s. d.
Oak Varnish	Outside	0 15 0
Fine ditto	ditto	0 17 2
Fine Copal	ditto	1 1 6
Pale Copal	ditto	1 2 6
Pale Copal Carriage	ditto	1 4 6
Best ditto	ditto	1 14 6
Floor Varnish	Inside	0 19 0
Fine Pale Paper	ditto	0 16 0
Fine Copal Cabinet	ditto	1 2 6
Fine Copal flatting	ditto	1 0 6
Hard drying Oak	ditto	0 18 0
Fine Hard drying Oak	ditto	0 19 0
Fine Copal Varnish	ditto	1 0 6
Pale ditto	ditto	1 2 6
Best ditto	ditto	1 14 6
Best Japan Gold Size		0 12 6
Best Black Japan		0 18 0
Oak and Mahogany Stain (water)		0 17 6
Brunswick Black		0 11 9
Berlin Black		0 16 6
Knotting (patent)		1 18 0
French and Brush Polish		1 8 0
Liquid Dryers in Terebine		0 13 6
Cuirass Black Enamel		0 7 0

* The information given on this page has been specially compiled for THE BUILDER and is copyright. Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the highest or lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

CURRENT PRICES FOR BUILDING WORK IN LONDON.*

EXCAVATOR.

		s.	d.
Digging and throwing or wheeling and filling carts, and carting away to shoot—6 ft. deep	per yard cube	15	6
Add if in clay	" "	1	9
Add for every additional depth of 6 ft.	" "	1	3
Planking and strutting to trenches	per foot super	0	7
Do. to sides of excavation, including shoring	" "	1	2

CONCRETOR.

		s.	d.
Portland cement concrete in foundation 1 to 6	per yard cube	43	0
Add if in underpinning in short lengths	" "	9	6
Add if in floors 6 in. thick	" "	3	10
Add if in beams	" "	4	9
Add if aggregate 1 : 2 : 4	" "	12	0
Add for hoisting not exceeding 10 ft. beyond the first 10 ft.	" "	4	0

BRICKLAYER.

		£	s.	d.
Reduced brickwork in lime mortar and Fletton bricks	per rod	39	15	0
Add if in stocks	"	8	10	0
Add if in Staffordshire blues	"	25	10	0
Add if in Portland cement and sand	"	3	10	0

FACINGS.

		s.	d.
Extra for facing in English or Flemish bond for every 10s. per 1,000 over the price of the common bricks	per ft. super	0	0	1½

POINTING.

		s.	d.
Neat flat strucks or weathered joint	" "	0	0	3

ARCHES.

		s.	d.
Extra only to the price of ordinary brickwork :—			
Fair external in half brick rings	" "	0	0	11½
Axed in stocks	" "	0	1	11
Rubbed and gauged jointed in putty camber or segmental	" "	0	6	8

SUNDRIES.

		s.	d.
Damp course in double course of slates breaking joint and bedded in Portland cement	" "	0	1	5
Setting ordinary register grates and stoves	each	1	1	0
Setting kitchener, including forming flues, &c., with all necessary fire bricks	"	5	5	0

ASPHALTER.

		s.	d.
Half-inch horizontal damp course	per yard sup.	7	6
Three-quarter-inch vertical damp course	" "	11	8
¾ inch on flats in two thicknesses	" "	8	6
Angle fillet	per foot run	0	3
Skirting and fillet 6 in. high	" "	1	4

MASON.

		s.	d.
York stone templates fixed	per foot cube	16	3
York stone sills fixed	" "	28	6
Bath stone and all labour fixed	" "	15	0
Portland stone fixed	" "	23	0

SLATER.

		s.	d.
Welsh 16 in. × 8 in. 3 in. lap, including nails	per square	98	0
Do. 20 in. × 10 in. Do. Do.	"	115	0
Do. 24 in. × 12 in. Do. Do.	"	117	6

CARPENTER AND JOINER.

		s.	d.
Fir framed in plates	per foot cube	6	9
Do. joists	" "	7	9
Do. roofs, floors and partitions	" "	7	9
Do. trusses	" "	10	0

		¾"	1"	1¼"	2"
Deal rough close boarding	per sq.	42/-	48/-	56/-	85/-

		s.	d.
Flat centering for concrete floor, including struts or hangers	"	63	0
Do. to beams	per ft. sup.	1	6
Centres for arches	"	2	0
Gutter boards and bearers	"	1	6

FLOORING.		¾"	1"	1¼"	1½"
Deal-edges shot	per sq.		49/-	58/-	67/-
Do. tongued and grooved	"		54/-	65/-	72/-
Do. matchings	"	45/-	55/-		
Moulded skirting, including backings and grounds	per ft. sup.	1/8	2/1	2/3	2/9

SASHES AND FRAMES.		s.	d.
One-and-a-half moulded sashes or casements	per foot super	1	11
Two Do. Do. Do.	" "	2	4½
Add for fitting and fixing	" "	0	6
Deal-cased frames with 1 in. inner and outer linings, 1¼ in. pulley stiles tongued to linings, hard wood sills with 2 in. moulded sashes in squares double hung, double hung with pulleys, lines and weights; average size	" "	4	9

DOORS.		1½"	1¾"	2"
Two panel square framed	per ft. sup.	2/6	2/9	2/11
Four-panel Do.	"	2/10	3/2	3/5
Two-panel moulded both sides	"	3/2	3/5	3/8
Four-panel Do. Do.	"	3/6	3/9	4/-

CARPENTER AND JOINER—continued.

FRAMES.

		s.	d.
Deal wrot moulded and rebated	per foot cube	15	6

		1"	1¼"	1½"
Plain deal jamb linings framed	per ft. sup.	1/11	2/-	2/3
Deal shelves and bearers	"	1/8	1/10	2/1
Add if cross tongued	"	2d.	2d.	2d.

STAIRCASES.

	1"	1¼"	1½"	2"	2½"
Deal treads and risers in and including rough brackets	2/3	2/6	2/11	—	—
Deal strings wrot on both sides and framed	1/9	2/1	2/3	2/9	—

		s.	d.
Housings for steps and risers	each	0	11½
Deal balusters, 1 in. × 1¼ in.	per ft. run.	0	9
Mahogany handrail; average 3 in. × 3 in.	" "	6	0
Add if ramped	" "	11	10
Add if wreathed	" "	23	9

FIXING ONLY IRONMONGERY (INCLUDING SCREWS).

6 in. barrel bolts	8½d.	Rim locks	2/4½
Sash fasteners	11½d.	Mortice locks	5/3
Casement fasteners	1/5	Patent spring hinges and letting in to floor and making good	19/-
Casement stays	1/2		
Cupboard locks	1/5		

FOUNDER AND SMITH.

		s.	d.
Rolled steel joists	per cwt.	20	0
Plain compound girders	"	23	0
Do. stanchions	"	26	0
In roof work	"	31	0

RAIN-WATER GOODS.

		3"	4"	5"	6"
Half-round plain rebated joints	ft. run	1/11	2/4½	3/7	4/-
Ogee Do. Do.	"	2/4½	3/1	3/10	4/9
Rain-water pipes with ears	"	2/9	3/7		
Extra for shoes and bends	each	4/4	5/11		
Do. stopped ends	"	1/11	2/4½	3/7	4/-
Do. nozzles for inlets	"	2/2	2/7	3/10	4/3

PLUMBER.

		s.	d.
Milled lead and laying in flashings and gutters	per cwt	56	0
Do. Do. in flats	"	52	0
Extra labour and solder in coated cesspools	each	7	4
Welt joint	per ft. run.	0	6
Soldered seam	" "	1	10
Copper nailing	" "	0	7

		½"	¾"	1"	1½"	2"	4"
Drawn lead waste	per ft. run	10d	1/6	1/9	3/1	3/10	
Do. service	"	1/5	1/11	2/3	3/6		
Do. soil	"						6/2
Bends in lead pipe	each					3/3	8/2
Soldered stop ends	"	1/2	1/8	2/1	2/10	3/6	
Red lead joints	"	11d.	1/-	1/3	1/11	2/4	4/10
Wiped soldered joints	"	2/10	3/6	4/-	4/11	6/6	9/9
Lead traps and cleaning screws	"				14/7	19/6	
Bib cocks and joints	"	6/4	9/7	15/4	41/-		
Stop cocks and joints	"	15/4	17/2	25/8	64/-		

PLASTERER.

		s.	d
Render, float and set in lime and hair	per yard sup.	3	2
Do. Do. Sirapite	" "	3	7
Do. Do. Keen's	" "	4	9
Add sawn lathing	" "	1	9
Add metal lathing	" "	3	0
Portland cement screed	" "	2	9
Do. plain face	" "	4	6
Mouldings in plaster	per 1 girth	0	3
One-and-a-half granolithic pavings	per yard sup.	6	7

GLAZIER.

		s.	d.
21 oz. sheet plain	per foot sup.	1	1
26 oz. Do.	" "	1	4
Obscured sheet	" "	1	8
⅛ in. rolled plate	" "	1	0
¼ in. rough rolled or cast plate	" "	1	1
¼ in. wired cast plate	" "	1	7

PAINTER.

		s.	d
Preparing and distempering, 2 coats	per yard sup.	1	3
Knotting and priming	" "		8
Plain painting 1 coat	" "	1	0
Do. 2 coats	" "	1	9
Do. 3 coats	" "	2	6
Do. 4 coats	" "	3	3
Graining	" "	2	8
Varnishing twice	" "	2	0
Sizing	" "	0	4
Flatting	" "	0	8
Enamel	" "	1	6
Wax polishing	per foot sup	0	10½
French polishing	" "	1	3
Preparing for and hanging paper	per piece	2/- to 4/-	

* These prices apply to new buildings only. They cover superintendence by foreman and carry a profit of 10% on the prime cost without establishment charges. A percentage of 1½ should be added for Employers' Liability and National Health and Unemployment Acts and from 1s. 6d. per £100 for Fire Insurance. The whole of the information given on this page is copyright.

NEW COMPANIES.

THE particulars quoted below have been compiled by Messrs. Jordan & Sons, Ltd., Company Registration Agents, of 116 & 117, Chancery-lane, W.C.2, from the documents available at the Companies' Registry.

SOUTH WALES JOINERY CO., LTD. (177,904). Registered November 18. Nominal capital, £1,000.

LUTHER INGHAM & CO., LTD. (177,956). Registered November 22. Builders and contractors. Nominal capital, £3,000.

GEO. A. LITHERLAND & CO., LTD. (177,924). Registered November 21. Fields Buildings, Wilson-street, Middlesbrough. Manufacturers and dealers in glass. Nominal capital, £3,000.

PLASTER PAINT, LTD. (177,961). Registered November 22. 14, Red Lion-square, W.C. 1. Nominal capital, £500.

GEORGE WHITEHEAD & SONS (DECORATORS). LTD. (178,053). Registered November 26. 160, Manchester-street, Oldham. Decorators, painters, &c. Nominal capital, £4,000.

PARTRIDGE'S MODELS, LTD. (178,128). Registered November 30. 4 & 5, Mason's-avenue, Coleman-street, E.C. 2. To make, exhibit, and supply architectural models of mansions, villas, &c. Nominal capital, £300.

FEDERATED FACTORS, LTD. (178,121). Registered November 30. 34, Eastgate, Louth, Lincoln. Builders and contractors. Nominal capital, £100.

COWLING & STANLEY, LTD. (178,073). Registered November 28. 134, Durncombe-street, Grimsby. Builders and contractors. Nominal capital, £1,000.

NAYLORS, LTD. (178,102). Registered November 29. 24A, Randall-street, Battersea Bridge-road, S.W. 11. Builders, decorators and contractors. Nominal capital, £500.

ELECTRA PALACE (ECKINGTON), LTD. (178,096). Registered November 29. 18, York-street, Sheffield. To acquire at Eckington, Derby, suitable sites for the purposes of electric picture theatres. Nominal capital, £500.

CAMPBELL GIFFORD & CO., LTD. (178,140). Registered December 1. 17, Victoria-street, S.W. Contractors, builders, and general engineers. Nominal capital, £10,000.

BRIDGNORTH BRICK WORKS CO., LTD. (178,171). Registered December 2. Nominal capital, £65,000.

THOMAS MUIRHEAD & CO., LTD. (178,188). Registered December 2. 1, Broad-street-place, E.C. Contractors, builders and general engineers. Nominal capital, £5,000.

NORDMANN & SONS, LTD. (178,181). Registered December 2. Contractors, builders, builders' merchants, &c. Nominal capital, £2,000.

PLYWOOD IMPORTING CO., LTD. (178,201). Registered December 3. Nominal capital, £1,000.

RICHARD HUGHES, LTD. (178,223). Registered December 5, 11, Park-lane, Kidderminster, Worcester. Timber merchants and saw-mill proprietors. Nominal capital, £15,000.

R. E. ARCHER & CO., LTD. (178,244). Registered December 6. West-street Sutton, Surrey. Builders, contractors, and decorators. Nominal capital, £5,000.

HENRY CROWTHER (WALSALL), LTD. (178,214.) Registered December 5. 75, Blue-lane West, Walsall, Stafford. Builders' fittings manufacturers. Nominal capital, £3,000.

PIPER BROS., LTD (178,201). Registered December 3. 8, North-street, Brighton. Builders' merchants, builders, contractors, and sanitary engineers. Nominal capital, £2,500.

NEWSHAM POTTERY CO., LTD. (178,265). Registered December 7. 18, Bridge-street, Blyth, Northumberland. Brick and tile manufacturers and merchants. Nominal capital, £6,000.

KNIGHT & JONES, LTD. (178,283). Registered December 8. Builders and contractors. Nominal capital, £3,000.

PROPOSED NEW BUILDINGS & OTHER WORKS.*

IN these lists care is taken to ensure the accuracy of the information given, but it may occasionally happen that, owing to building owners commencing work before plans are finally approved by the local authorities, "proposed" works at the time of publication have been actually commenced. Abbreviations:—T.C. for Town Council; U.D.C. for Urban District Council; R.D.C for Rural District Council; E.C. for Education Committee; B.G. for Board of Guardians; L.C.C. for London County Council; B.C. for Borough Council; and P.C. for Parish Council.

ASHINGTON.—Plans passed by U.D.C.: Mr. Glass, alterations to business premises at 8, Woodhorn-road; Dr. Revie, outbuildings at West View; Girling & Son, workshops at Back Station-road; Mr. F. W. Proud, alterations at 180, Rosalind-street.

AUCHTERARDER.—Plans for a garage and two-roomed dwelling-house above, for Messrs. Henderson Bros., at 35, High-street, have been passed.

AYRSHIRE.—The Sub-committee on Housing has reported to a meeting of the Northern District Committee of Ayrshire County Council that the Scottish Board of Health had indicated a concession in the way of allowing additional houses to be built under the committee's housing scheme. The number sanctioned is 50, in addition to the 10 and 12 for which tenders have already been approved for Dreghorn and Kilbirnie respectively. It was decided to allocate 30 houses to Stevenston and 10 each to Beith and Dalry.

BECKENHAM.—The U.D.C. has prepared a town-planning scheme, and has deposited the plans at the offices for public inspection.

BEDFORD.—Plans passed by T.C.: Usher & Anthony, for Parr's Bank, a shed, High-street; Mr. Wilson, for Mr. J. T. Christmas, a shed, Fountain Inn, Cardington-road; Mr Inskip, for Mr Legge, baths and lavatories, Kimbolton-road; for H. Thody & Son, a workshop, Queen-street; for Miss Biggs, a garage, Milton-road; and for Mr. Phypers, workshop, Union-street.

BENTLEY.—A Ministry of Health inquiry has been held into the application by the U.D.C. to borrow £4,275 for the purpose of erecting a new pumping station at Arksey, and to provide and fix four electric control panels at the existing pumping stations in Bentley.

BIRKENHEAD.—Plans passed by T.C.: Picture hall at the junction of Old Chester-road and Grove-road; office building, 55, Oxton-road; garage, Rose Mount; alterations to shop, 102, Chester-street; alterations to dwelling-house, 22, Cavendish-drive; garage, 76, Park road, West; addition to shop, 70, Market-street; garage, 8, Cavendish-road; addition to "Apsley Lodge," Rose Mount; shed, 25, Seymour-street; copper-house, Birkenhead Brewery, Brook-street; conversion of the former Baptist Chapel, Clifton-road, into a Masonic Temple.

BRIGHTON.—The T.C. has agreed to improve the lavatory accommodation at the Madeira Drive shelter hall, at an estimated cost of £325.

CHELMSFORD.—Official sanction has been given to the T.C. carrying out river schemes at costs of £1,700 and £6,100, respectively

CLITHEROE.—It has been decided by the Conservative Club to purchase the "Brownlow Arms" property for conversion to club premises.

CROYDON.—It is proposed to proceed with the provision of buildings and pulverising plant for dealing with the house refuse at South Norwood as soon as the sanction of the Ministry of Health has been received.

DURHAM.—The Ministry of Health has sanctioned the borrowing by the County Water Board of £422,520 for various works.

EDINBURGH.—The Lord Provost's Committee of the T.C. has had before it a letter intimating that Mr. J. W. Kennedy had completed an agreement to purchase the canal basin site and was prepared to negotiate for the Corporation acquiring it as a site for an exhibition hall or other purpose.

ENFIELD.—The Middlesex C.C. has approved of the widening of Bullsmoor-lane, including the widening of the Great Eastern Railway Bridge and approaches, and the work will be carried out under the superintendence of the County Surveyor.

ESTON.—The U.D.C. proposes to erect a fire station, at an extended cost of £6,000.

FALMOUTH.—Plans passed: Motor-house adjoining 2, Western-terrace, for Mr. Meares; shop front, 41, Market-street, for the Star Tea Co.; house, Bar-terrace, for Mr. R. S. Burt.

FARNHAM.—The R.C.D. has approved plans submitted on behalf of the Prime Minister for a residence on the estate of seventy acres in the Hindhead district, which he recently purchased from Lord Ashcombe. It is understood that Mr. Lloyd George proposes to build a country house at Churt. It is stated that the contract price is about £15,000. The mansion has been designed by Mr. Fielder, architect, and the contract has been placed in the hands of Mr. J. W. Woolnough, builder, of Eastbourne.

HALIFAX.—Plans passed by T.C.: Halifax Cricket, Athletic and Social Club, wooden Army hut refreshment room, at Thrum Hall Grounds; Patons & Baldwins, Ltd., office extension, at Clark Bridge Mills; Mr. Sam Stocks, new shop fronts, at Waterhouse-street and Crown-street; Mr. C. H. Walker, shop alterations, at 20, Northgate; Patons & Baldwins, Ltd., lavatory accommodation, at Clark Bridge Mills; The Managers, Holy Trinity Schools, store, shed, &c., Trinity School.

HAYES.—The U.D.C. has disposed of a site to the Middlesex E.C. for a school.

HULL.—Preliminary steps have been taken to have a memorial erected at Old Killingholme Creek, near Immingham Dock lock, to commemorate the sailing therefrom of the Pilgrim Fathers in the "Mayflower." Plans passed by T.C.: V. Hall, house, Cottingham-road; P. Gaskell, house, Newland Park; A. Barratt, alterations, 30, Newland-avenue; Ruskin Buildings, Ltd., alterations, 31, Scale-lane; Wing & Wilkinson, garage and water closet, Parrott-street; G. O. Whitehead, additions, Washington-street; S. Millar, bay window, 121, Spring Bank; Armour & Co., Ltd., drainage, 7, Mytongate; Hull Co-operative Society, Ltd., lavatory, Jameson-street; G. Hunter, Ltd., chimney, Cumberland-street; T. Linsley & Co., Ltd., alterations, "Slater's Arms," West Parade; "Hull Daily Mail," alterations, Whitefriargate; Hull Trades and Labour Party, sanitary improvements, &c., Kingston-square; A. Sanderson & Co., varnish works and store, Ropery-street; Lofthouse & Saltmer, lavatories, Church-lane; G. Jackson & Sons, lavatory, &c., 36, Witham; Shell Mex Co., garage, Berkeley and Cranbourne-streets; E. Fox & Sons, alterations and additions, Salthouse-lane; Bass, Ratcliffe & Gretton, Ltd., alterations, "Talbot Hotel," Scale-lane; Shell Mex, Ltd., lubricating oil store, Sculcoates; C. Charter & Co., lavatories, &c., Albion-street; A. Leake, garages, 51, Walton-street; Worthington & Co., Ltd., alterations, Dock Walls.

ILFORD.—Plans passed by U.D.C.: L.C.C. house drainage on building estate; A. G. Young, alterations, 12 and 14, Hainault-street; H. Warren, roof coverings for farm vehicles, Little Newbury, Ley-street; Corporation of London, carriageway, Waremead-road; A. P. Griggs, motor works, High-road; W. Harbrow, Ltd., drainage, Ursuline School; A. J. Bayliss, shed and stores, 105, Wanstead Park-road; G. Baines & Son, extension at Seven Kings U.M. Church and Schools.

IRELAND.—At a meeting of the Dublin Corporation recently, Alderman Cosgrave, Minister of Local Government, stated that he had put before the Provisional Government that £1,000,000 should be devoted to housing in Ireland for the coming year, and the proposal was accepted.

ISLE OF MAN.—The Isle of Man harbour commissioners have issued a report to the Insular Legislature recommending important improvements at Douglas Harbour to deal with the increasing tourist traffic. They recommend the provision of two new low water berths for steamers of the Manxman and Viking type, by the extension of the Red Pier by four hundred feet, at a cost of £282,000.

KEIGHLEY.—Plans for an estimate of £2,221 for the extension of the Drake and Tonson's School have been approved by the West Riding E.C.

KINGSCLERE.—Plans passed by R.D.C.: Additions to house at Newtown for Lady Arbuthnot; additions to Hill Meadow House, Banghurst, for Major G. A. Bramwell.

LANCASTER.—Plans passed by T.C.: Motor garage, "The Greeves," for Mr. E. Johnson; garage, 78, Regent-street, for Mr. P. M. Compton.

LEEK.—Work estimated to cost £3,000 is to be carried out at the Brough Park.

LINCOLN.—The late Mr. James Ward Usher has left an art collection to the city, and the residue of his property to the Corporation, for providing a building or enlarging a building to house the collection.

LINCOLNSHIRE.—Important proposals with regard to the reconstruction of first-class main roads have been approved by the Holland C.C. The estimated expenditure on work to be undertaken is £50,000, of which one-half is expected to be returned in grant from the Roads Fund. The ultimate outlay proposed in ta macadamising the whole of the main roads is £400,000.

LONDON (CITY).—The governors of St. Bartholomew's Hospital have accepted a tender for the building of the first wing of their new home for the nurses to be known as "Queen Mary's Home for St. Bartholomew's Nurses."

LONDON (HAMMERSMITH).—Drainage plans passed by B.C.: At 9, Leamore-street, for Mr. C. H. Cook; at the Market Roadway, Shepherd's Bush, for Mr. F. Dawson, Agent, Hammersmith and City Joint Railway; at 267, Goldhawk-road, for Messrs. A. Pascall & Sons; at rear of Broadway Congregational Church, for Messrs. J. S. Quilter & Sons; at 191A, Askew-road, for Mr. C. W. Rees.

LONDON (LEWISHAM).—Plans passed by B.C.: Fifty houses, Bellingham Estate, for the L.C.C.; garage, 29, Garlies-street, for Mr. A. Moore; 34 houses, Bellingham Estate, for the L.C.C.

LONDON (POPLAR).—Plans passed by B.C.: Mr. F. Stevens, building and drainage of additions, 12 and 14, Wellington-road; James Carmichael (Contractors), Ltd., factory for Messrs. J. Evershed & Co., in Old Ford-road; The Pitcher Construction Co., Ltd., sanitary accommodation at the Queen's Theatre, High-street, Poplar; Mr. F. Payne, additional drainage, 27, Coborn-road; Messrs. Andrews & Peascod, additions to St. Andrew's Hospital, Devons-road; Messrs. Horn, Rogers & Pettit, factory (Phœnix Works), for Messrs. Allen Liversedge, Ltd., Dewberry-street.

MALTON.—It has been decided, subject to the consent of Princess Mary, to devote the funds raised for her wedding towards a new hospital.

MYTHOLMROYD.—Plans passed by U.D.C.: Conversion of Royd House into bank premises; warehouse at Lower While Lee.

NORTH DARLEY.—An inspector of the Ministry of Health has held an inquiry into the application of the U.D.C. to purchase the Rowsley Waterworks from the Duke of Rutland and to construct new waterworks.

OLDHILL.—The Ministry of Mines has approved an extensive scheme for colliery developments in the Oldhill, Staffordshire district. The scheme, which involves the formation of a new drainage board, is for the purpose of draining the mines, three of which were closed in consequence of flooding during the national coal stoppage, and additional machinery is to be laid down costing £40,000, the money for which will be raised by the local owners.

*See also our List of Contracts, Competitions, etc.

OTLEY.—Revised plans for providing permanent buildings for the Grammar School have been approved by the West Riding E.C.

PORTISHEAD.—The Ministry of Health has sanctioned a loan of £500 for the provision of sanitary conveniences at the Marine Lake.

PRESTON.—The T.C. has decided to construct a new generating station on the south bank of the Ribble for the installation of two 10,000 kilowatt turbo-generators costing £420,000, and connecting Preston and Blackburn with a duplicate main, costing £138,000.

REDDITCH.—A fund is being inaugurated for the restoration of Sheldon Chapel in Beoley Church.

RUISLIP (NORTHWOOD).—Plans passed by U.D.C. Alterations and additions to the Old Workhouse, Ruislip Common, Mr. W. E. Guy: alterations and additions to "The True Lovers' Knot," Northwood, Salter & Co.; bungalow, Sharps-lane, Ruislip, Mrs. E. Riddle; house, Ducks-hill, Northwood, Mr. H. Crane; estate office, Green-lane, Northwood, Stimpson, Lock & Vince; shop, house and warehouse, Great Central-avenue, Northolt Junction, Mr. W. Robinson; alterations to two cottages, Fore-street, Eastcote, Mr. F. Gill; a house, Copse Wood, Northwood, F. Tibbenham, Ltd.; bungalow, Myrtle-avenue, Eastcote, Mr. A. L. Colyer; bungalow, Linden-avenue, Eastcote, Mr. G. Foot; bungalow, Priors-gardens, Northolt Junction, Mr. R. Adamson; and additions to bungalow, Great Central-avenue, Northolt Junction, Mr. H. S. Nolan.

SCUNTHORPE.—The U.D.C. has decided to apply for a further loan of £80,000 for housing.

SEDGEFIELD.—Plans passed by R.D.C.: Cottage adjoining Hiley House, Sedgefield, for Mr. J. Robson; yardmaster's house at Ferryhill, for the N.E.R., and additions to outbuildings at the Locomotive Inn, Trimdon Colliery.

SMETHWICK.—The T.C. has instructed the Surveyor to prepare plans for estimates for altering the Temperance Hall so that it can be used as a Court of law. Plans passed: Motor garage, 25, Oldbury-road, for Mr. Halford.

SOUTH SHIELDS.—Plans passed by T.C.: Mr. H. Grieves, for the Governors Ingham Infirmary, new wing, designated the "Chadwick Wing," to Ingham Infirmary, Westoe-road; Mr. H. Grieves, for the Governors Ingham Infirmary, servants quarters and stores at rear of Administrative Block at Ingham Infirmary, Westoe-road; Messrs. J. W. Hanson & Son, for Mr. J. W. Wood, alterations to houses, 11 and 12, Park-terrace; Messrs. T. A. Page & Son, for Messrs. W. Jackson (Sunderland), Ltd., alterations to the "Grapes Hotel," Ocean-road; Mr. Howard Hill, for Mr. Walter Warnes, shop, tea room and store situate North Sands; Mr. Howard Hill, for Miss G. Smith, new shop front, 12, Westoe-avenue; Mr. Howard Hill, for Mr. J. W. Grainger, alterations to shop, 67, Westoe-road; Mr. F. W. Newby, for Mr. J. W. Williams, alterations to premises, 105–107, Canterbury-street.

SOWERBY BRIDGE.—Plans have been approved, and the work of erecting new Post Office premises in Allan Park, Sowerby Bridge, is to be commenced immediately.

STANLEY.—Plans passed by U.D.C.: Wooden building at Wrenthorpe, for Mr. Whitehead; greenhouse at Bar-lane, Stanley, for Mr. J. A. Crossland.

STOCKTON-ON-TEES.—Plans passed by U.D.C.: Additions to bungalow at Oxbridge, for Mr. E. Brough, Ash Tree Farm; alterations to premises at 8, High-street, for Mr. H. E. Metcalfe; dwelling-house at the junction of Green-lane and Stavordale-road, for Mr. A. J. Cooke; and alterations to premises at 59, Parliament-street, for Mr. G. Barker.

SUNBURY.—The Middlesex E.C. proposes to erect a temporary school at an estimated cost of £5,500.

WAKEFIELD.—Plans passed by R.D.C.: Pavilion at Overton, for the Derby Grange Collieries C.C.

WALLESEY.—Plans passed by T.C.: Alterations at 236, Liscard-road, for the London Joint City and Midland Bank, Ltd.; two houses in Gerard-road, for Mr. G. A. Lindley; four dwelling houses in Elm Park-road, for Mr. J. H. Lindley; house at the corner of Marlowe-road and Monmouth-road, for Mr. R. B. Watson; shed, Carrington-road, for Mr. G. A. Pearce; two houses and two garages in Gorsehill-road, for Messrs. Harrocks Bros.; shed, 13, Valkyrie-road, for Mr. R. G. Roberts; shed, "The Hawthorns," St. George's road, for Mr. J. G. Robertson; motor shed, Smithy Yard, School-lane, for Mr. G. A. Hill; house, North Drive, for Mr. F. B. Brown; garage, St. George's Mount, for Mr. C. Emery; garage, Sea View-road, for Mr. William Davies; tennis pavilion, Belvidere-road, for the Claremount Lawn Tennis Club; garage at Stoneleigh, Penkett-road, for Mr. E. Simnet; caravan bungalow, Smith Yard, School-lane, for Miss A. Hasler; shop, Dock-road, for J. H. Wilson & Co., Ltd.; two houses, Broadway-avenue, for Mrs. Sharpe; two houses in Cliff-road, for Mr. William Stocks.

WALTHAMSTOW.—Plans passed by U.D.C.: Garage, "East View," Comely Bank-road, for Mr. G. W. Harper; urinal, Billet P.H., Chingford-road, for Messrs. Wm. Bradford & Sons; alterations, Blackhorse-lane, for Messrs. S. Haskins, Ltd.; workshop, St. Stephen's-road, for Mr. W. G. Fuller.

WILLESDEN.—The Middlesex E.C. has considered sketch plans of a semi-permanent building providing the following accommodation:—14 class rooms accommodating 366 pupils, assembly hall, cookery room, manual training room, staff rooms, cloak rooms, lavatories, &c. The plans provide for a single story building with a frontage to Uffington-road, sited so as to be capable of linking up to a future Secondary School building at front of the site and being converted into a Trade School when the permanent building is erected. The plans have been forwarded to the Board of Education for approval.

FIRES.

BARMOUTH.—The summer residence of Mr. Archer, builder and contractor, Birmingham, has been destroyed by fire. The damage is estimated at £2,000.

BRADFORD.—Premises at 31, Cheapside, and 32, Dale-street, occupied by a number of firms, have been greatly damaged by fire.

CHELTENHAM.—By an outbreak of fire which occurred at Mr. Monkhouse's plywood and sidecar manufactory in St. James's-square, damage to the amount of £1,500, it is estimated, was done.

DENTON.—The club house of the Denton Golf Club has been destroyed by fire and a loss of about £4,000 incurred.

GLASGOW.—Damage estimated at £3,000 has been caused by fire in the four-story building in 168, Gallow gate, occupied by Mr. R. Ven, basket manufacturer.

HUDDERSFIELD.—Much damage was caused by an outbreak of fire at the United Indigo Chemical Company's works, Longroyd Bridge.

KINVER.—The country mansion, Prestwood House, near Kinver, in course of conversion into a sanatorium, has been destroyed by fire. The building was acquired about two years ago by the Staffordshire, Wolverhampton, and Dudley Joint Committee for the Treatment of Tuberculosis.

MUSSELBURGH.—Logan's Picture House, New-street, has been completely destroyed by fire. The building belongs to the Pavilion Theatres Co., Ltd.

NORTHAMPTON.—£65,000 damages have been caused by a fire at Messrs. W. Barratt & Co.'s boot factory.

PWLLHELI.—A warehouse, stores and garage belonging to the Eifionydd Farmers' Co-operative Society has been completely gutted by fire.

TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach him not later than Tuesday evening.

*Denotes *accepted*. † Denotes *provisionally accepted*.
‡ Denotes *recommended for acceptance*.
§ Denotes *accepted subject to modifications*.

BAILDON.—For sewering the Lane-end district, with approximately 218 yards of 9 in. and 6 in. pipe sewer, &c., for the U.D.C. Mr. C. E. Bean, Engineer and Surveyor, Council Offices, Baildon:—

W. H. Raper, Bradford	£623 8 0
E. Balmforth, Bradford	499 0 0
Smith & Robinson, Leeds	488 18 0
Ward & Tetley, Bradford	450 0 0
W. Ellis & Son, Baildon	407 0 0
W. & S. Bradley, Bingley	380 0 0
H. Watkinson, Yeadon	380 0 0
W. Pitts & Sons, Shipley	345 0 0
R. Beaumont, Honley	318 12 6
S. Naylor & Son, Bradford	318 0 0

BLOFIELD.—For 18 houses in blocks of three at Upton, Blofield, Brundall and Strumpshaw, for Blofield R.D.C. Mr. George J. Skipper, F.R.I.B.A., architect, Norwich:—

	6 Cottages in 2 Blocks of 3. Upton.	6 Cottages in 2 Blocks of 3. Blofield.	3 Cottages 1 Block of 3. Brundall.	3 Cottages 1 Block of 3. Strumpshaw.
Collison Bros., Reepham	£4,060 0 0	£4,060 0 0	£2,066 0 0	£2,066 0 0
W. Church	3,960 0 0	3,960 0 0	1,818 6 5	1,818 6 5
G. Stowers, Norwich	3,574 0 0	3,574 0 0	1,674 0 0	1,725 0 0
E. M. Jones, Halvergate	3,510 0 0	3,550 0 0	1,685 10 6	1,675 4 3
Young & Sons, Norwich	3,492 0 0	3,492 0 0	1,740 0 0	1,746 0 0
R. Claxton	3,390 0 0	—	—	—
R. G. Carter, Drayton	—	3,350 0 0	1,683 10 0	1,683 10 0
W. Palmer, Aylsham	3,156 0 0	3,152 0 0	1,600 0 0	1,619 10 0
H. C. Greengrass, Costessey	3,132 0 0	3,132 0 0	1,520 0 0	1,520 0 0
W. J. Hannant, Norwich	3,100 0 0	3,060 0 0	1,550 0 0	1,580 0 0
H. Tofts, Hingham	3,100 0 0	3,100 0 0	1,560 0 0	1,560 0 0
Rice Bros., Norwich†	3,050 0 0	3,050 0 0	1,515 0 0	1,515 0 0
H. Mayes, Lingwood	—	—	—	1,545 0 0
*A. E. Daniels, Acle	2,850 0 0 (a)	—	—	—
*J. Gedge & Sons, Blofield	—	2,850 0 0 (b)	1,357 0 0 (c)	—
*H. Tibbenham, Lingwood	—	—	—	(d) 1,420 0 0

(a) £475 per house. (b) £475 per house. (c) £452 6s. 8d. per house. (d) £473 6s. 8d. per house.

Trade Conditions in Western Canada.

His Majesty's Trade Commissioner in Winnipeg (Mr. L. B. Beale) reporting to the Department of Overseas Trade on the trade conditions of Western Canada as at the beginning of October, says conditions in the lumber industry are expected to improve with the marketing of the crop. It is known that building operations, urgently needed, have been delayed in the Prairie Provinces owing to the generally depressed state of business, but now money is likely to be more plentiful it is expected that building will be carried out on a fairly large scale. Lumber prices are already down as far as they will go, and no advantage will be gained by a further delay. During the first six months of the year 72,815,500 ft. of lumber have been exported from British Columbia, of which Australia has taken 11,328,000 ft., Japan 12,115,500 ft., and other countries of the Orient 17,442,000 ft. In 1920 total exports amounted to 146,624,269 ft. Taking the industry as a whole, the mills at present are stated to be busier than at any time since March, and are cutting nearer to normal output than at any time this year. There has been a very large increase in building activity since August, and the following figures are illuminating. Contracts throughout Canada to the value of $36,307,200 were awarded in August, as compared with $17,741,400 in July, an increase of over 100 per cent., to which Western Canada contributed very substantially.

Assurance Company's New Building in Durban

A South African press report states that the site belonging to Messrs. Steel, Murray & Co., in Durban, adjoining the Royal Hotel, with frontages to Smith-street, the Town Gardens and Gardiner-street, has been purchased on behalf of the National Mutual Life Association of Australasia. The present building on the site will be demolished and a modern building erected, but details of the plans are not yet available. United Kingdom manufacturers of materials likely to be required for the new building may deem it desirable to furnish H.M. Senior Trade Commissioner in South Africa with copies of their catalogues and price lists, so that these may be submitted in the right quarter as early as possible. Such literature should be addressed to H.M. Senior Trade Commissioner in South Africa, P.O. Box 839, Johannesburg.

BECKENHAM.—For the erection of St. Michael's Vicarage, Beckenham. Messrs. Francis Hooper & Son, architects, Norfolk House, Norfolk-street, W.C.2, quantities by Messrs. Kennard & Coffin, Norfolk House, Norfolk-street, W.C.2:—

Pearce, Bromley	£3,762
J. Overal & Son, Beckenham	3,105
F. & H. F. Higgs, Herne Hill	2,890
Andrews & Andrews, Beckenham	2,849
R. Mansell, Croydon	2,794

BIRKENHEAD.—For the erection of tenement dwellings at Lansdowne-road, for the T.C.:—
*Birkenhead House Construction Co... £8,000

BRIDGWATER.—For erection of showyard buildings, &c., for show to be held at Bridgwater in May, 1922, for the Somerset County Agricultural Association. Mr. Harold O. Samson, Surveyor, 1, Hammet-street Taunton. Quantities by Surveyor:—
C. Bryer, Bridgwater
(*Accepted on Priced Schedule "A."*)

CRAMLINGTON.—For laying 5,150 yards of sewer with sanitary pipes at Shankhouse and East Hartford, construction of sedimentation tanks, &c., for the U.D.C. Mr. A. S. Dinning, engineer, 21, Ellison-place, Newcastle-on-Tyne:—

R. Gallacher, Blackhill	£19,500 0 0
C. V. Buchan & Co., Ltd., Southwick	18,353 0 0
P. D. Hayes & Sons, Stockport	17,699 1 0
W. Wilson & Co., Ltd., Newcastle-on-Tyne	17,673 3 6
Gus. Bailey & Co., Ltd., Newcastle-on-Tyne	17,551 9 0
Purdie Lumsden & James, Ltd., Newcastle-on-Tyne	17,318 12 5
R. Fisher, North Shields	17,221 0 0
G. P. Trentham & Co., Ltd., Edinburgh	17,185 0 0
T. A. Davies, South Shields	17,100 0 0
Dyson, Lindsey & Co., Ltd., Chester-le-Street	16,790 3 0
J. W. Dorin, Hexham	16,603 18 1
W. J. Armstrong & Co., Blaydon-on-Tyne	15,725 0 0
G. Mackay & Co., Edinburgh	15,592 11 4
Skinner & Hill, Newcastle-on-Tyne	15,542 6 7
North of Scotland Transport Co., Ltd., Montrose	15,420 3 9
Provincial Construction Co., Ltd., Sunderland	15,350 0 0
H. C. Pullar & Co., Manchester	15,176 4 11
Wm. Kennedy & Sons, Jarrow-on-Tyne	14,995 7 [illegible]
J. Lant, Newcastle-on-Tyne	14,993 18 7
Unit Construction Co., Ltd., Glasgow	14,920 0 0
C. S. Bunch, Newcastle-on-Tyne	14,531 9 0
Geo. Simpson & Co., Newcastle-on-Tyne	14,470 4 11
*Sir Robert McAlpine & Sons, Newcastle-on-Tyne	13,880 0 0

CROYDON.—Supply of 313 cast-iron spigot and socket pipes, to the T.C.:—
*Stanton Ironworks Co., Nottingham..£9 14s. 3d. per ton.

CROYDON.—For supply and fixing of nine foundation stones at Surrey-street waterworks, for the T.C.:—
*Truett & Steel, Thornton Heath..... £345

DARTFORD.—For erection of 28 houses, for the U.D.C. :—

†Purnell & Clifford, Reading..... £17,220

EASTBOURNE.—For erection of 33 houses on the Victoria-drive site, for the T.C. :—

†Purnell & Clifford, Reading.

HALIFAX.—For re-covering roof over cable store at Electricity Works, for the T.C. :—

*F. Pulman & Co., Halifax £119 6 5

HAYES.—Diversion of Uxbridge-road at Hayes, for the Middlesex C.C. (The scheme of contract is a schedule of prices on which the contractor gets a fee of 5½ per cent. for management and overhead charges, with a bonus of 50 per cent. of any saving he effects on the whole job on the basis of the agreed schedule, with a penalty of 5 per cent. on any excess over the estimate). (*a*) Tender; (*b*) profit; (*c*) total :—

George Wimpey & Co.—			
(*a*) £13,750 11 0	(*b*) £756 5 7	(*c*)	£14,506 16 7
Stephen Kavanagh & Co.—			
(*a*) 12,887 0 0	(*b*) 708 15 8	(*c*)	13,595 15 8
H. Morecroft—			
(*a*) 12,778 13 0	(*b*) 702 16 5	(*c*)	13,481 9 5
*G. J. Anderson—			
(*a*) 11,813 13 10	(*b*) 649 15 0	(*c*)	12,463 8 10
R. H. Powis—			
(*a*) £51,363 3 0	(*b*) £2,824 19 6	(*c*)	£54,188 2 6
H. Morecroft—			
(*a*) 51,340 7 8	(*b*) 2,823 14 4	(*c*)	54,164 2 0
Stephen Kavanagh & Co.—			
(*a*) 51,267 0 0	(*b*) 2,819 13 8	(*c*)	54,086 13 8
George Wimpey & Co.			
(*a*) 46,862 15 2	(*b*) 2,577 9 0	(*c*)	49,440 4 2
*G. J. Anderson—			
(*a*) 45,827 9 2	(*b*) 2,520 10 2	(*c*)	48,347 19 4

KETTERING.—For Corby sewage scheme, for R.D.C. :—

W. G. Willmot, Rushden	£4,300 0 0
P. Rourke, Lutterworth	4,275 0 0
R. Marriott, Rushden	3,995 0 0
W. W. Webster, Guilsborough	3,926 17 6
G. Riley, Brearley, Lancs	3,795 5 4
W. Moss & Sons, Loughborough	3,750 0 0
J. E. Nadin & Son, Sheffield..	3,712 1 0
G. B. Heap, Northampton ..	3,560 8 0
G. H. Greasley, Leicester	3,252 0 0
S. Walker, Northampton ..	3,193 0 0
Radford, Tebbs & Co., Derby	3,127 16 0
O. P. Drever & Son, Kettering	3,084 0 0
Chandler Bros., Manchester ..	3,065 12 9
Unit Construction Co., Birmingham	3,039 13 0

HIGH WYCOMBE.—For erection of 60 houses on the West End Recreation Field housing scheme, for the Chepping Wycombe T.C. Mr. T. J. Rushbrooke, Borough Surveyor, High Wycombe :—

	8 North houses.	8 South houses.	Total for 60 houses.	Roads.	Total.
W. J. Simms, Sons, & Cooke, Ltd., Nottingham	£4,959 1 11	£4,721 19 11	£36,307 17 0	£4,056 4 0	£40,364 1 0
A. L. & H. W. Chown, Northampton.....	4,975 0 0	4,880 0 0	36,956 15 0	3,375 0 0	40,331 15 0
H. Fisher, Northampton ..	4,964 0 0	4,720 0 0	36,315 0 0	3,488 0 0	39,803 0 0
Building & Public Works Construction, Swindon..	4,998 0 0	4,767 0 0	36,618 15 0	2,767 0 0	39,385 15 0
Building Guild, Ltd., Manchester	4,760 0 0	4,760 0 0	35,700 0 0	3,600 0 0	39,300 0 0
Dare & Wareing, Birmingham	4,896 0 0	4,592 0 0	35,580 0 0	2,969 0 0	38,549 0 0
*J. & C. Costin, Harrow....	4,903 0 0	4,630 0 0	35,748 15 0	2,500 0 0	38,248 15 0

Fifty-four contractors tendered for this work, but the above list covers the various lowest tenders received for sections.

H.M. OFFICE OF WORKS (accepted during December) :—

Building Works, &c.—Bandeath—Sewer: Bain & Brown, Ltd., Leith. Belfast—Works and repairs: W. J. Campbell & Son, Belfast. Dunfermline Telephone Exchange—Adaptation: Brown & Templeman, Dunfermline. Edinburgh—Alterations and extension of laboratory: Colin Macandrew, Ltd., Edinburgh. Edinburgh Maintenance Works—Painter, &c.: A. Hutton & Son, Edinburgh; excavator, &c., and carpenter and joiner: Colin Macandrew, Ltd., Edinburgh; slater: Wm. Anderson & Son, Edinburgh. Glasgow Maintenance Works—Carpenter and joiner: Wm. McCall & Sons, Glasgow; glazier: G. & J. Rae, Ltd., Glasgow; slater: Glasgow and District Building Guild, Glasgow; excavator, &c: R. Gilchrist & Son, Ltd., Glasgow; painter, &c.: McCulloch & Co., Glasgow. Greenock Maintenance Works—Painter: &c. Macalister & Fyfe, Greenock; carpenter and joiner: J. K. Wilson, Greenock. Hampton Court—Drainage, &c.: H. D. Ebbutt, Croydon. Hampton Court—Repairs to Barge Walk: H. Morecroft, London, W. Harrow—Sanitary work: H. Neal, Northwood. Hayes Post Office—Steelwork: The Frodingham Iron and Steel Co., Ltd., Scunthorpe. Heath Hill—Farm buildings: H. Smith (Wolverley), Ltd., Wolverley. Hebburn Houses—Slating: Dawber, Townsley & Co., Ltd., Darlington. Horse Guards-parade—New road: John Mowlem & Co., Ltd., London, S.W. Hove—Erection of houses: Bainbridge & Son, Eastbourne. Hull Inland Revenue Offices—Alterations: Holiday & Barker, Hull. Islington—Hutting: The Pitcher Construction Co., Ltd., London, N. Paisley Inland Revenue Offices—Alterations: W. T. Knox, Paisley. Shepherd's Bush Post Office—Alterations: Dilliway & Elvy, London, W. Sidcup Telephone Exchange—Adaptation: Douglass, Halse & Co., Ltd., London, S.E. South Kensington—New spirit building: W. G. Tarrant, Ltd., Byfleet. Stirling Maintenance Works—Excavator, &c.: James Ronald & Sons, Stirling painter, &c: Wm. McLaren, Stirling. Windsor Telephone Exchange—Erection: Purnell & Clifford, Slough.

Engineering Services.—Electrical and mechanical works (labour only)—Birmingham, Bristol and Liverpool: The Alpha Manufacturing Co., London, S.W.; Edinburgh and Glasgow: Woodward, Sons & Co., Ltd., Glasgow. Kew Insurance Office and National Gallery—Heating, &c.: H. J. Cash & Co., Ltd., London, S.W. Wembley Post Office—Heating, &c.: B. Finch & Co., Ltd., London, S.E.

Painting, &c.—W. G. Beaumont & Son, London, E.; T. J. Gabb, Ltd., London, E.C.; M. Greenwood & Son (Burnley), Ltd., London, N.W.; Vigor & Co. (Poplar), Ltd., London, E.; Waring & Gillow, London, W.

Miscellaneous.—Fencing: T. W. Palmer & Co., London, S.W.; C. H. S. Nunn, London, S.E. Plate glass: Pilkington Bros., Ltd., St. Helens. Showcases, &c.: H. Morris & Co., Ltd., Glasgow; Harris & Sheldon, Ltd., Birmingham; A. Edmonds & Co., Ltd., Birmingham. Towels: The Broadway Damask Co., Ltd., Belfast; The Ulster Weaving Co., Ltd., Belfast. Wood Block Flooring (Swansea): Floorings, Ltd., Manchester. W.I. Gates and Railings for Acton: James Allan, sen., & Son, Ltd., Glasgow.

ILFORD.—Supply of 200 tons of dressed setts, for the Tramways Dept. :—

*W. Griffiths & Co..... £5 4s. 6d. per ton

KINGSBURY.—For widening of section of main road between Edgware-road and Buck-lane, Kingsbury, for the Middlesex C.C. (Tenders on same basis as Hayes contract given above.) (*a*) Tender; (*b*) profit; (*c*) total :—

G. Henson & Sons, Wellingborough	2,888	7	4
W. Higgins, Ltd., Northampton	2,496	0	0
*A. L. & H. W. Chown, Northampton	2,350	0	0
A. Johnson, Kettering	2,315	0	0

LANCASTER.—For construction of street works in connection with housing site, for the T.C. :—

*J. Johnson, Lancaster..... £1,026 15

LIVERPOOL.—Painting, &c., at City Hospital North, for the T.C. :—

*Crowther & Bailey, Liverpool..... £562

LIVERPOOL.—External painting of artisans' dwellings, Hornley, Burlington and Kew-street areas, for the T.C. :—

*Tippen Bros., Liverpool..... £1,885

LIVERPOOL.—External painting of the artisans' and labourers' dwellings, Bevington-street, Gildart's-gardens, Arley-street, and Eldon-street areas, for the T.C. :—

*T. Murtha, Liverpool..... £2,058

LIVERPOOL.—External painting of the artisans' and labourers' dwellings, Adlington-street, Kempston-street and St. Anne-street areas, for the T.C. :—

*W. Clarkson, Liverpool..... £1,498

LIVERPOOL.—Erection of fencing on Elms House Estate, for the T.C. :—

*E. Ellis, Liverpool..... £126 11 10

LIVERPOOL.—Erection of 18 tenement dwellings in one block on Blenheim-street site, for the T.C. :—

*E. Ellis, Liverpool..... £11,115

LIVERPOOL.—Supply of six exhibition cases to the T.C. :—

*E. G. Payne, Liverpool..... £56 each

LIVERPOOL.—Supply of sleepers and dogspikes for the Prescot Light Railway, for the T.C. :—

*Richard Grandidge, West Float, Birkenhead, 14,200 creosoted pitch pine railway sleepers.

*Thomas Summerson & Sons, Ltd., Albert-hill Foundry, Darlington, 26 tons mild steel dogspikes.

LIVERPOOL.—For repairs to 43, Russell-street, for the T.C. :—

*S. Powell & Son, Liverpool..... £475

LONDON.—Supply of 2,000 trailing wheel tyres, for Tramways Dept. of the L.C.C. :—

*Steel, Peech & Tozer..... at £1 each.

LONDON.—For removal of ashes from Greenwich Power Station, for the L.C.C. :—

*Cory Lighterage, Ltd..... 3s. 5d. per cu. yd.

LONDON.—For alterations to the heating apparatus and hot-water supply installation at the Soho Fire Station for the L.C.C. :—

Tilley Bros., N.....	£815	0
Frank Davies, Leyton	805	0
Hy. Hope & Sons, Ltd., W.	779	8
J. & F. May, W.C.	737	0
Brightside Foundry and Engineering Co., Ltd., Camberwell	723	0
B. Finch & Co., Ltd., S.E.	701	0
John Biggs, S.E.	700	0
W. G. Cannon & Sons, Ltd., Southwark	682	0
Bilbie, Hobson & Co., E.C.	613	10
*Palowkar & Sons, E.C.	568	0

LONDON.—For heating of new office building, for the Hammersmith B.C. :—

*W. J. Burroughs & Son..... £337

LONDON.—For materials required for schemes of work for relief of unemployment, for the Hammersmith B.C. :—

Wood paving works (14 tons moulded block pitch, 520 galls. creosote oil)—

Gas Light & Coke Co... Pitch 77s. 6d. per ton, oil 9¼d. per gall.

Tarmacadam works (St. Stephen's-avenue, Godolphin-road, Melina-road and Bloemfontein-road)—

Constable, Hart & Co., E.C... Bottomings 42s. 6d. per ton, middle coat 43s. 6d. per ton, toppings 44s. per ton, slag dust 25s. per ton.

P. Shepherd & Co., Acton.. Bottomings 43s. per ton, middle coat 43s. per ton, toppings 45s. 6d. per ton, slag dust 20s. per ton.

Wood paving works (Studland-street, Great Church-lane and Paddenswick-road)—Wood blocks—

J. B. Lee & Sons, Ltd., E.C... Wood blocks £16 3s. 6d. per 1,000.

Wood paving works (Studland-street, Paddenswick and Dalling-roads, Great Church-lane)—Thames ballast—

H. J. Greenham, Fulham.. Ballast 9s. 3d. per ton, sand 13s. 9d. per ton, shingle 20s. per ton.

Cement (Great Church-lane, Paddenswick and Dalling-roads, Queen-street, Studland-street)—Sewer manholes, various parts of the Borough—

Sankey & Co., W.6.. Portland cement 70s. 6d. per ton.

J. Knowles & Co., St. Pancras.. Portland cement 70s. 6d. per ton.

Special sewer works—Manhole covers—

F. Bird, West Drayton.. Manholes 61s. 8d. each, step irons 10½d. each.

LONDON.—Supply of 100 fire hydrants to the Metropolitan Water Board :—

	Each.	Total.
Merryweather & Sons, Ltd...	Lump sum..	£1,045 7
Alley & MacLellan, Ltd.....	5 10 0 ..	550 0
Guest & Chrimes, Ltd.....	4 15 6 ..	477 10
Glenfield & Kennedy, Ltd...	4 15 6 ..	477 10
Ham, Baker & Co., Ltd. ..	4 15 6 ..	477 10
*J. Stone & Co., Ltd..... ..	4 15 6 ..	477 10
J. Blakeborough & Sons ..	4 15 6 ..	477 10

[The Works Committee reporting to the Board say: "It is significant that the five tenders received from firms who usually undertake this class of work are identical in amount, viz., £477 10s. We have accepted the tender of the London firm, J. Stone & Co., Ltd., but desire to record our disappointment at the absence of competition which the tenders disclose."]

LONDON.—For supply of steel tubes to the Metropolitan Water Board :—

*Clayton, Son & Co., Leeds..... £8,800

LONDON.—For laying asphalte paving in various roads, for the Lewisham B.C. :—

At per yard super.

	s.	d.
Val de Travers Asphalte Paving Co., Ltd.....	5	6
Limmer & Trinidad Lake Asphalte Co., Ltd.....	5	2
Whitehall Asphalte & Engineering Co., Ltd.....	5	1
Thomas Faldo & Co., Ltd.....	5	0
*Ragusa Asphalte Co., Ltd.....	4	6

LONDON.—Construction of motor pits at seven fire stations, namely, Millwall, Battersea, Pageant's Wharf, Brixton, West Hampstead, Brompton and Bethnal Green, for the L.C.C. :—

A. T. Peyton, Ltd., Lewisham....	£681 5
Triggs & Co., Clapham.....	525 0
John C. Mather, Islington.....	440 0
J. Scott Fenn, Woolwich.....	378 15
W. J. Dixon & Son, Bermondsey..	354 16
Douglass, Halse & Co., Ltd., Woolwich	323 0
*Edwards Construction Co., Ltd., Eltham	299 10

LONDON.—Alterations and repairs at Greenwich Fire Station, for the L.C.C. :—

A. T. Peyton, Ltd., Lewisham ..	£1,957 0
J Scott Fenn Woolwich	1,919 0
Triggs & Co., Clapham	1,675 0
Thomas & Edge, Woolwich	1,397 0
W. Mills & Sons, Ltd., Blackheath	1,379 0
Edwards Construction Co., Ltd., Eltham	1,294 0
W. J. Dixon & Son, Bermondsey..	1,092 16
*Douglass, Halse & Co., Ltd., Woolwich	998 0

LONDON.—For re-creosoting 500,000 old wood blocks, for the Westminster City Council :—

*Burt, Boulton & Haywood, Ltd..... £1,543 16 8

LONDON.—The St. Pancras B.C. has accepted a revised tender of Messrs. Wakeley Bros. & Co., Ltd. for the supply of Portland cement at £3 11s. 6d. per ton (see our last issue).

MIDDLESEX.—For construction of section 2*a* of the Great West-road, from Syon-lane, Isleworth, to Boston-road, New Brentford, for the C.C. :—

*Frank Hayes, Liverpool..... £219,282

MILFORD HAVEN.—For alterations to Barclays Bank. Messrs. Thomas & Ingleton, architects and surveyors, 11, Victoria-place, Haverfordwest :—

D. G. Davies, Pembroke Dock	£3,260
Phelps & Owens, Milford Haven	2,687
W. & G. Cole, Milford Haven	2,620
Thomas Bros., Templeton	2,590
Edwin Thomas, St. Davids	2,395

MOUNTAIN ASH.—For erection of a transformer station and offices in Oxford-street, for the U.D.C. Mr. C. H. Elford, Architect, Town Hall, Mountain Ash; quantities by the Architect:—

John Murray, Mountain Ash	£4,052	14	1
N. Moss, Merthyr Tydfil	3,936	0	0
W. W. Peck, Cardiff	3,598	0	0
D. Davies & Sons, Cardiff	3,540	0	0
John Morgar & Son, Ltd., Aberdare	3,407	7	2
Gwilym Davies, Aberdare	3,383	6	0
Knox & Wells, Cardiff	3,187	0	0
John W. Thomas, Mountain Ash	3,122	5	8
A. W. Julian, Pontypridd	3,107	13	0
Blackburn & Co., Treharris	2,949	16	4
*Evan Jones, Abercwmboi	2,900	0	0

PARKGATE (YORKS).—For formation of new 60 ft. wide roadway, about 600 yards in length, together with the laying of 12 in. foul and storm sewer, and the building of manholes, for the Rawmarsh U.D.C. The Surveyor, Council Offices, Urban District Council, Rawmarsh, Yorks:—

G. Sprakes & Sons, Doncaster	£40,365	7	10
C. L. Warren, Liverpool	25,793	9	7
A. Waterman, Leeds	25,716	5	1½
Whitley & Dickinson, Doncaster	24,982	19	10
G. Ramsden, Rawmarsh	24,280	16	0
J. Hadfield & Sons, Sheffield	21,865	0	0
W. H. Treherne, Rotherham	21,754	0	0
Battye, Bros. & Firth, Sheffield	19,460	11	8
W. M. Beeden, Rotherham	18,819	5	1
Lane Brothers, Mansfield	18,199	1	11
Ward & Tetley, Bradford	17,648	13	8
A. J. Pugh, Rawmarsh	17,587	0	0
Radford, Tebbs & Co., Derby	17,096	2	8
*H. C. Pullar & Co., Manchester	15,000	0	0

PENRITH.—For erection of war memorial gate at the Castle Park, for the U.D.C.:—
*A. Grisenthwaite £900

SKEGNESS.—For erection of new wing to the Skegness and District Cottage Hospital. Mr. F. Tugwell, architect, Westborough, Scarborough:—
*J. G. Holmes & Sons, Skegness.

STAINLAND.—For paving about 2,000 super yards and relaying 350 super yards of flagged footpath at Holywell Green, for the U.D.C. Mr. H. Edgar Moses, Surveyor, Council Offices, Stainland; quantities by Surveyor:—

For execution of works—
*David Brook, Halifax £1,295 14 9
For supply of Yorkshire setts—
*Shaw, Hirst & Hardy, Ltd., Stainland 1,070 0 0

WALLASEY.—For apparatus, &c., for the Gas Department of the T.C.:—
*R. Dempster & Sons, Elland—Purifiers £7,300 0 0
*British Mannesman Tube Co.—Mains, &c. 7,554 15 8

WALLASEY.—Erection of emergency staircase at Highfield Child Centre, for the T.C.:—
*G. Lowe & Sons, Liverpool £147

WALLASEY.—For erection of 46 additional houses on the Mill-lane and Love-lane site, for the T.C.:—
*John Laing & Son, Carlisle—18 houses £8,886
*J. Dolen & Son, Warrington—8 houses 4,322
*J. Laing & Son—12 houses 5,862
*Jones & Todd, Wallasey—8 houses .. 4,356

WALTON.—For laying 43 in. main from Walton to Honor Oak, for the Metropolitan Water Board:—

	Amount of tender as submitted.			Amount of tender after examination.		
W. G. Tarrant, Ltd.	£117,570	0	0..	No alteration.		
Baldry, Yerburgh & Hutchinson, Ltd.	117,236	6	4..	„	„	
Wm. Muirhead, Macdonald, Wilson & Co., Ltd.	117,213	7	2..	„	„	
Sir William Arrol & Co., Ltd.	105,374	16	10..	„	„	
Consolidated Construction Co., Ltd.	100,079	11	2..	„	„	
Macdonald, Gibbs & Co. (Engineers), Ltd.	99,432	11	9..	„	„	
R. Robinson & Co.	97,593	6	8..	„	„	
James Byrom, Ltd.	94,822	4	10..	„	„	
A. E. Farr	93,866	10	6..	„	„	
Engineer's estimate	93,500	0	0..	„	„	
Wm. Press & Son	89,997	17	6..	„	„	
Trollope & Colls, Ltd.	87,701	0	0..	„	„	
John Mowlem & Co., Ltd.	81,647	2	8..	„	„	
Whittaker Ellis, Ltd.	81,044	11	8..	„	„	
Crawford Bros.	74,283	10	4..	£74,284	0	4
Frank Hayes	72,032	8	9..	71,616	16	9
Walter Jones & Sons	68,334	16	0..	No alteration.		
*Wilson Lovatt & Sons, Ltd.	64,246	16	1..	64,246	6	1

WHITEHAVEN.—For carrying out water scheme, for the Whitehaven and Harrington R.D.C's:—
*W. Wilson, Ltd., Newcastle-on-Tyne £29,000

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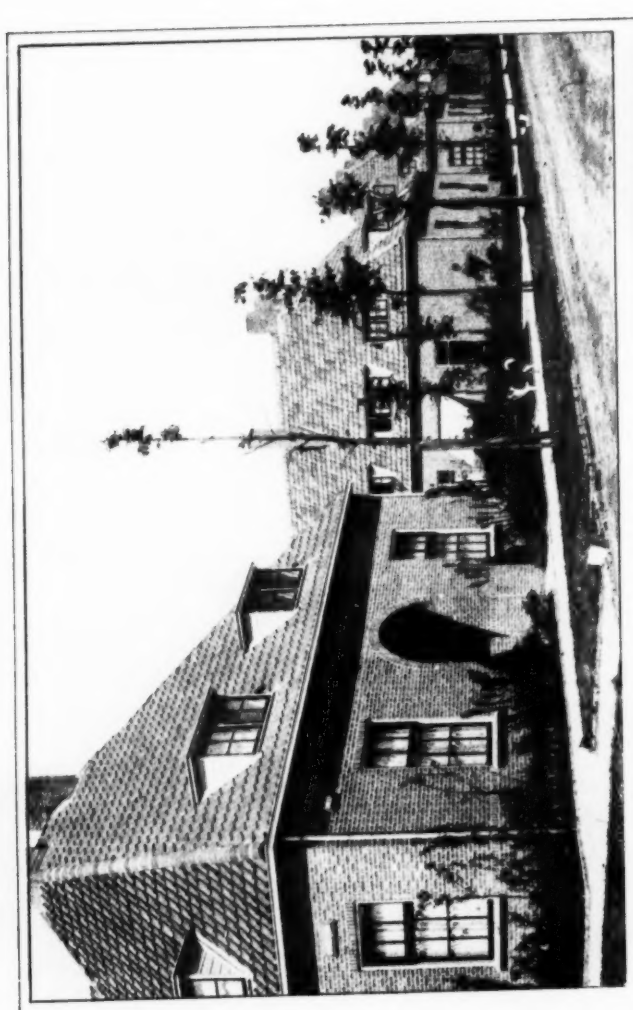

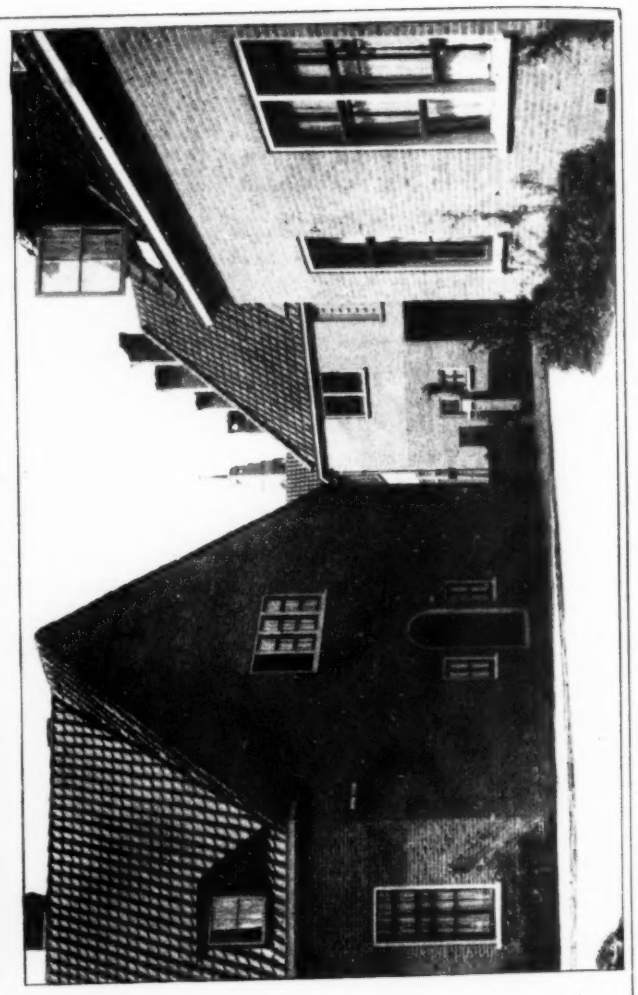

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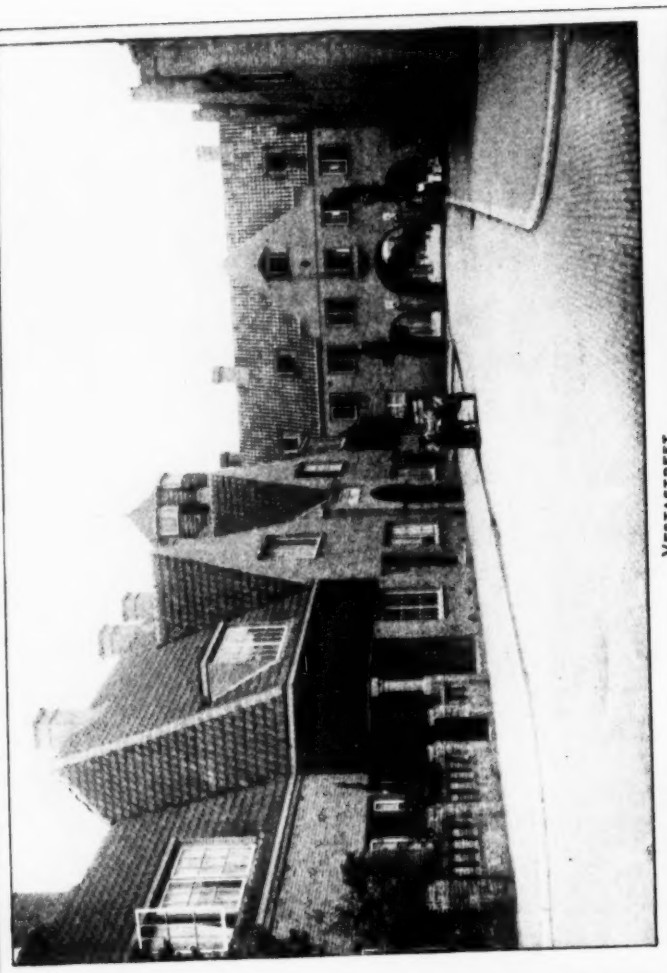
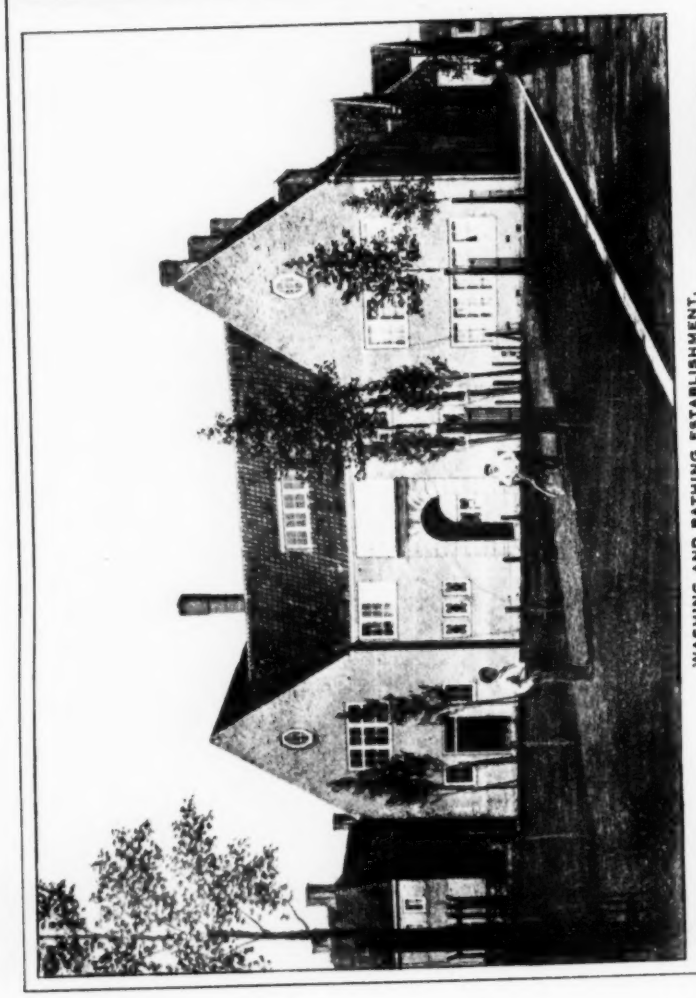


VESTASTREET.

YOUNG MEN'S HOME.



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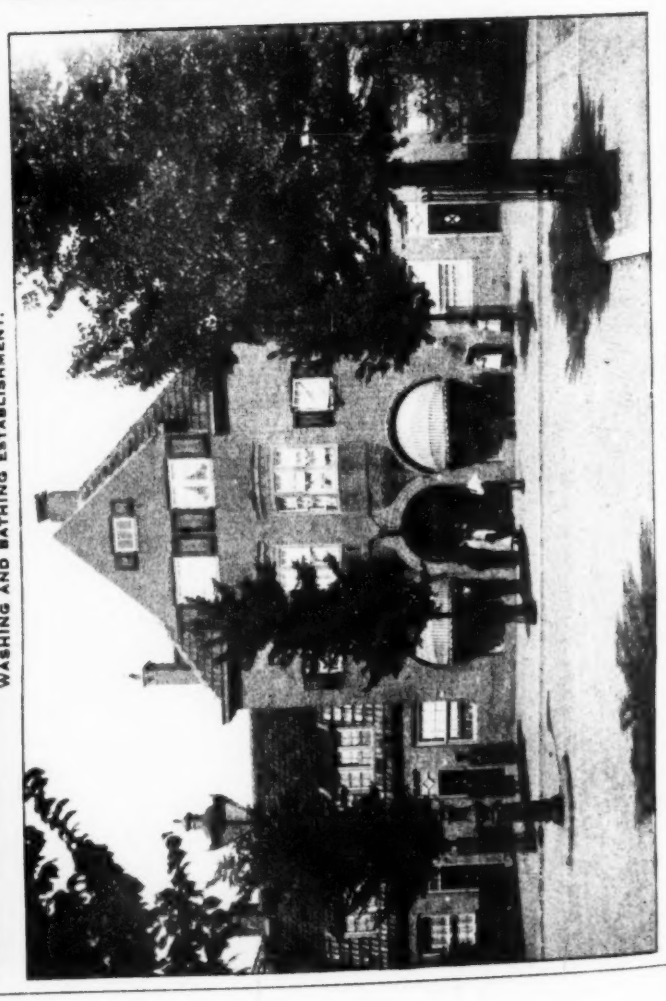

ONE OF THE PUBLIC BUILDINGS.

HEYPLAAT GARDEN VILLAGE, FOR THE ROTTERDAM DRY DOCK CO..

ONE OF THE PUBLIC BUILDINGS.

YOUNG MEN'S HOME.

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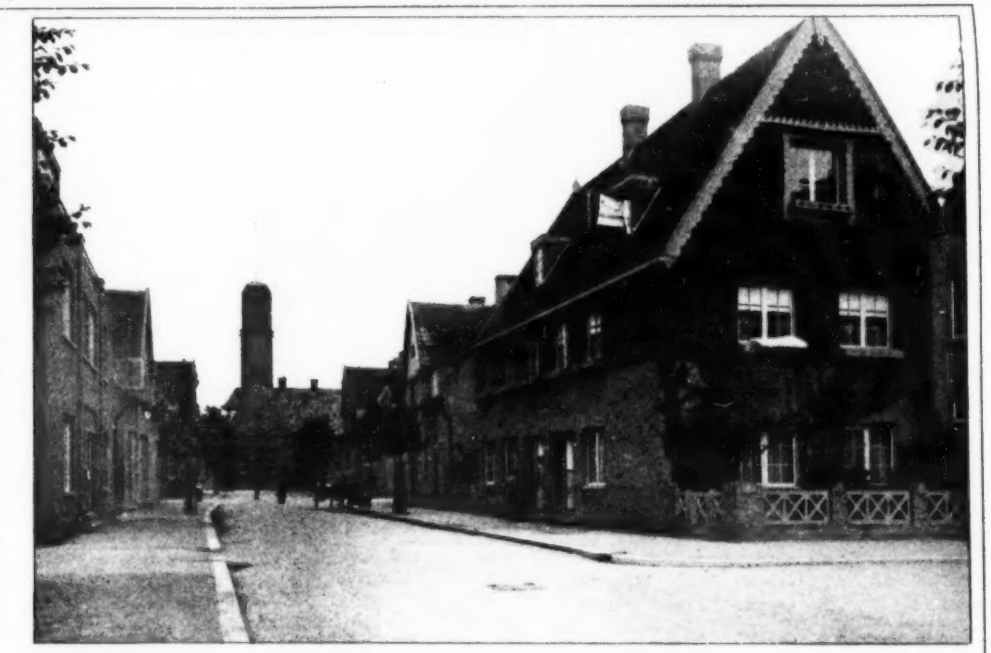
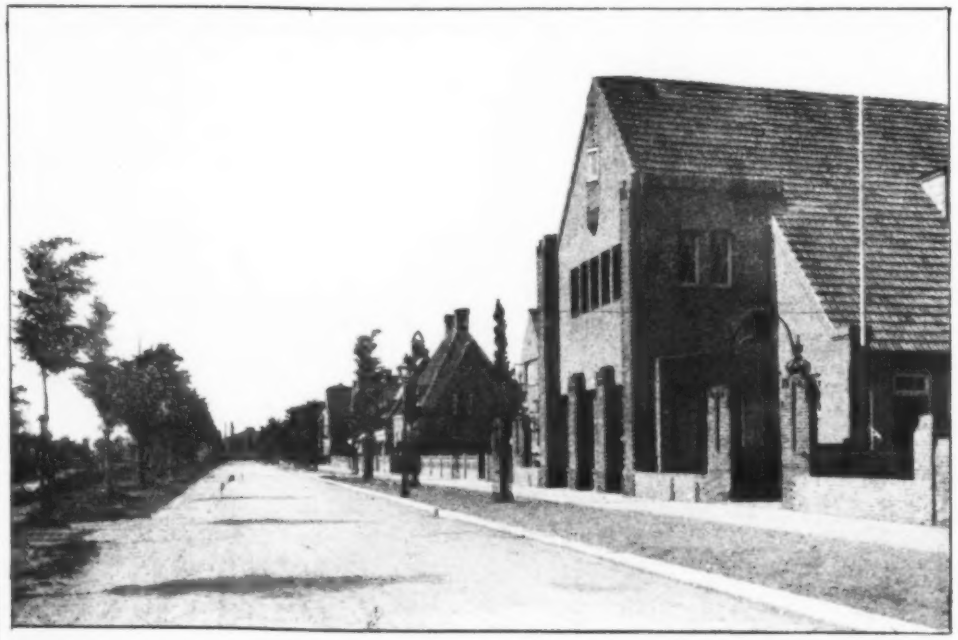
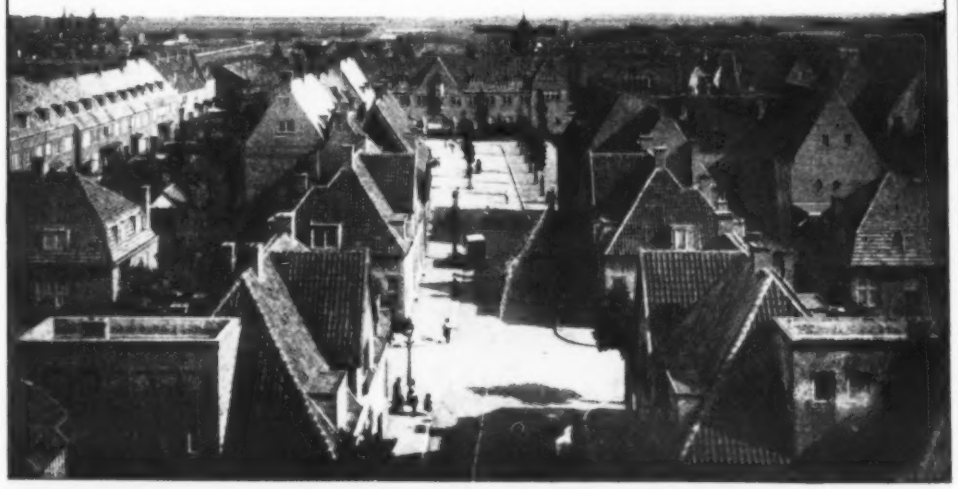


VESTASTREET: SHOWING TOWER OF MEETING HALL.



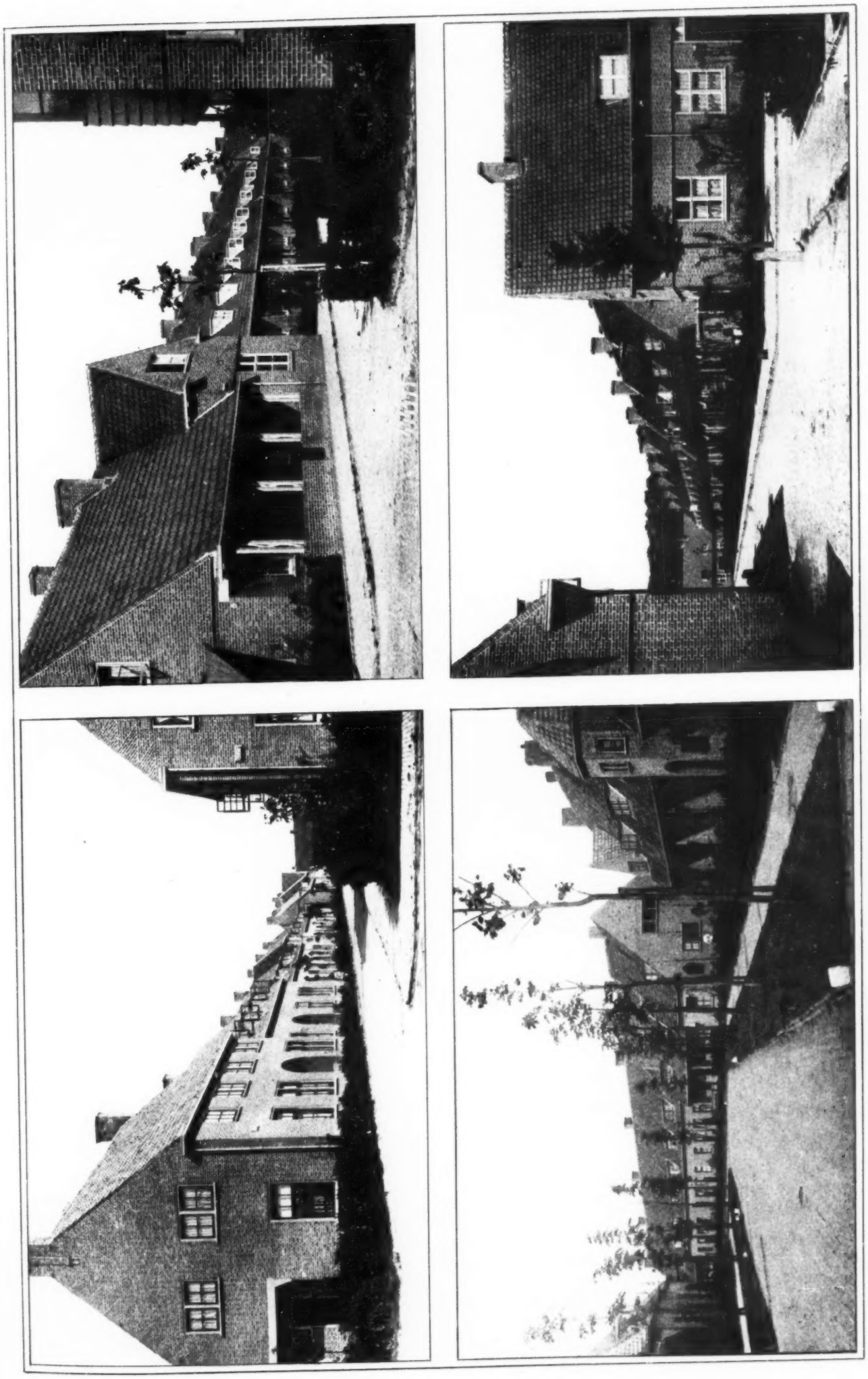
RECREATION BUILDING.



BIRD'S-EYE VIEW OF THE GARDEN VILLAGE.

HEYPLAAT GARDEN VILLAGE, FOR THE ROTTERDAM DRY DOCK CO.,

MR. H. A. J. BAANDERS, ARCHITECT.



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